

FIG. 1A

V1/V2

T S S
 N R
 N S
 D K190
 180 W Y S K D V I C C Y M N H C N T S V I T E S C D K H
 T E A
 Y170 Q
 K R
 K D R
 E L G T M N F Q C C N D A R V C P S T D N I I T I N Q T
 D T G L
 M E E E
 150

**ΔV1/V2**

200
 A G H C N T S V I T E S C D K H
 G V C L P T L K V C P K I S

FIG. 1B

V3

300 G N K T V L P I M S 310
R P G N K
F Y N L T M H C K
290 Q G E F W C W A Q R P K K N I V P K S H
K W Q G E F W C W A Q R P K
330
340



V3(6,6)

300 G N K
R P G N K
F Y N L T M H C K
290 Q G E F W C W A Q R P K
K W Q G E F W C W A Q R P K
330
340



V3(1,1)

300 G N K
R P G N K
F Y N L T M H C K G A
290 Q G E F W C W G
K W Q G E F W C W G
330
340

FIG. 1C

$\Delta V1/V2; V3(6,6)$

Y S G F A
 ● N P
 T D N C 240 C S K V
 L A A
 A F G P P A C T R 250
 A C N T S V I T E S C D K H Y W D A
 G v C L P T L K V C P
 100 K I S T E F L N W 90
 Y Q E I A L 70
 D D N D 90
 T W G T I Q C L
 D R N K T A C F L P 140
 50 K Q F V T V F Y G I P
 NH2 - M K G S K N Q L 1 A I V L A S A Y L T H C / K Q F V T V F Y G I P

$\Delta V1/V2$

$\Delta V3(6,6)$

Y W H G K N ●
 I 200 R T
 T R 270 ● N E A R T G
 A A
 A F G P P A C T R 250
 A C N T S V I T E S C D K H Y W D A
 G v C L P T L K V C P
 100 K I S T E F L N W 90
 Y Q E I A L 70
 D D N D 90
 T W G T I Q C L
 D R N K T A C F L P 140
 50 K Q F V T V F Y G I P
 NH2 - M K G S K N Q L 1 A I V L A S A Y L T H C / K Q F V T V F Y G I P

● N F Y N L T M H C
 290 W Q G E F W C W
 330 A Q R P K
 M A 340
 E V K
 260 F
 Q
 E V K E T L A K H
 350 H P R Y K
 400 ● V E N R T G Q K
 W N Q
 R
 L
 F W 410 Y
 T M N C H I R Q I I N T
 360 R E S
 420 T W H
 R
 V
 G
 F
 E
 G
 R
 C 440
 380 T N M W T S N C T L E G E R P P L Y 30
 V T
 T
 S
 I A N 1450
 D D T G
 D Q
 T F
 S A E V A E L Y R L E L G D Y K L V E I T P
 470
 480
 G
 F
 A
 P
 C O O H - R T H R G H A S S Y R K V S T P
 500

FIG. 1E

6/50

2V1/V2;V3(6,6)
p16.5 Clone

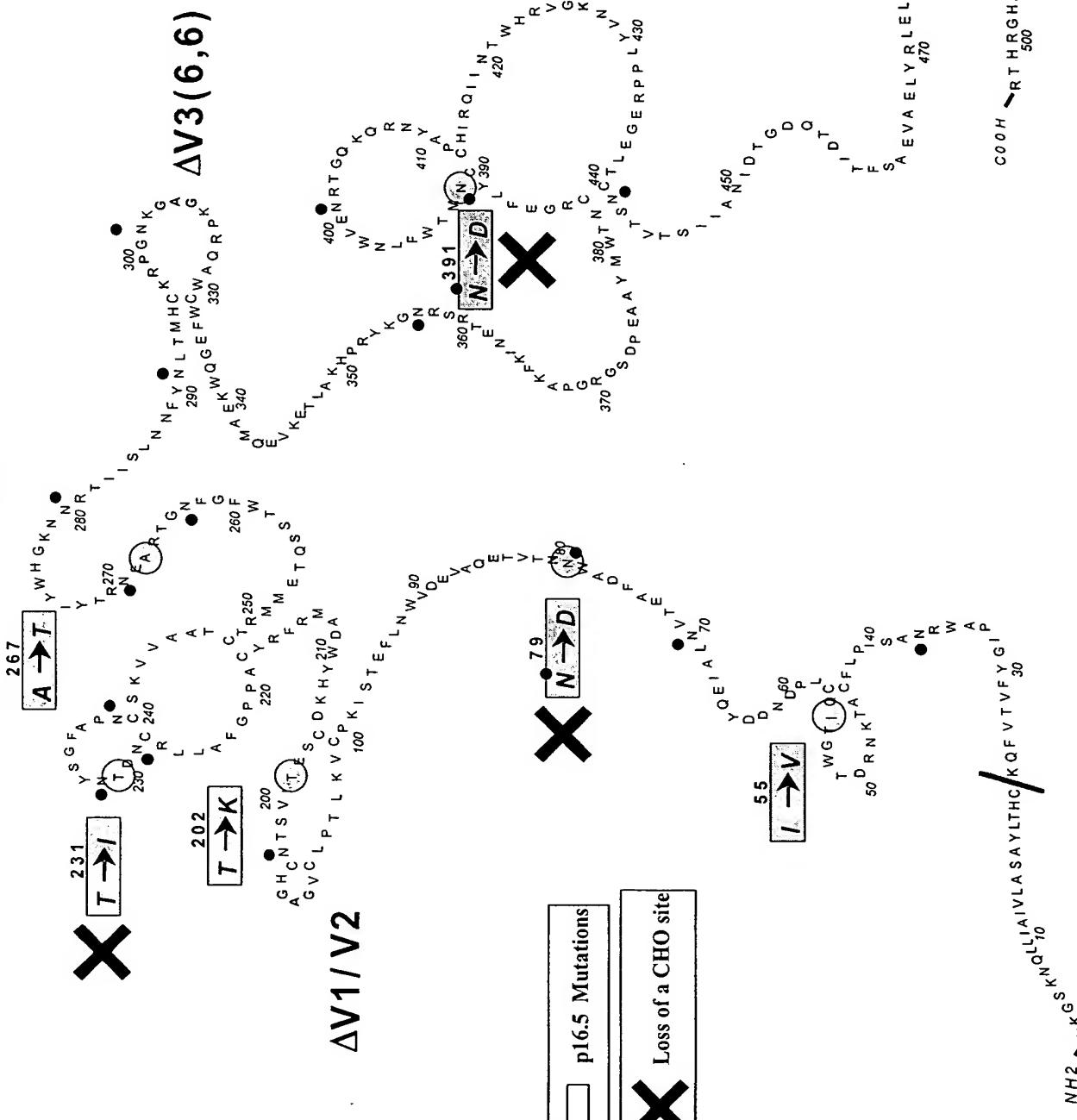


FIG. 1F

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²V1/V2;V3(6,6)
p16.7 Clone

p16./ Clone

A F F G P C C T R 250
 H C N T S V I T E S C D K H Y 210 M
 V C L P T L K V C P K
 100 K 1

$$\Delta V_1 / V_2$$

16.7 Mutations

Loss of a CHO site

W A P
Q F V T V F Y G I
30

8
 $L \rightarrow P$

272

6 F A P
G H S Y R K V S T
C O O H R T H R G H A S S Y R K V S T
500

FIG. 1G

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2V3(6,6)
p16.9 Clone

FIG. 1H

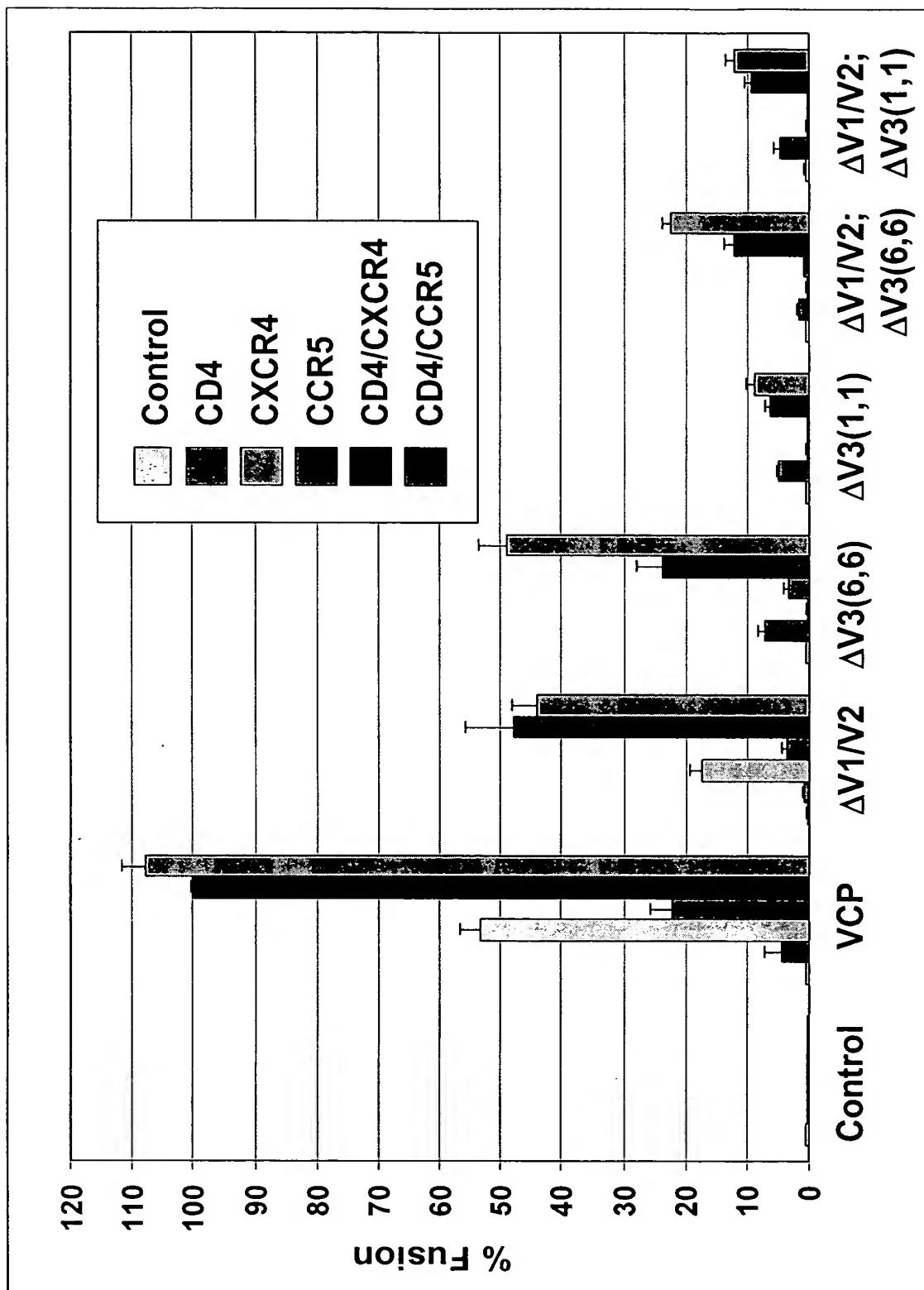


FIG. 2

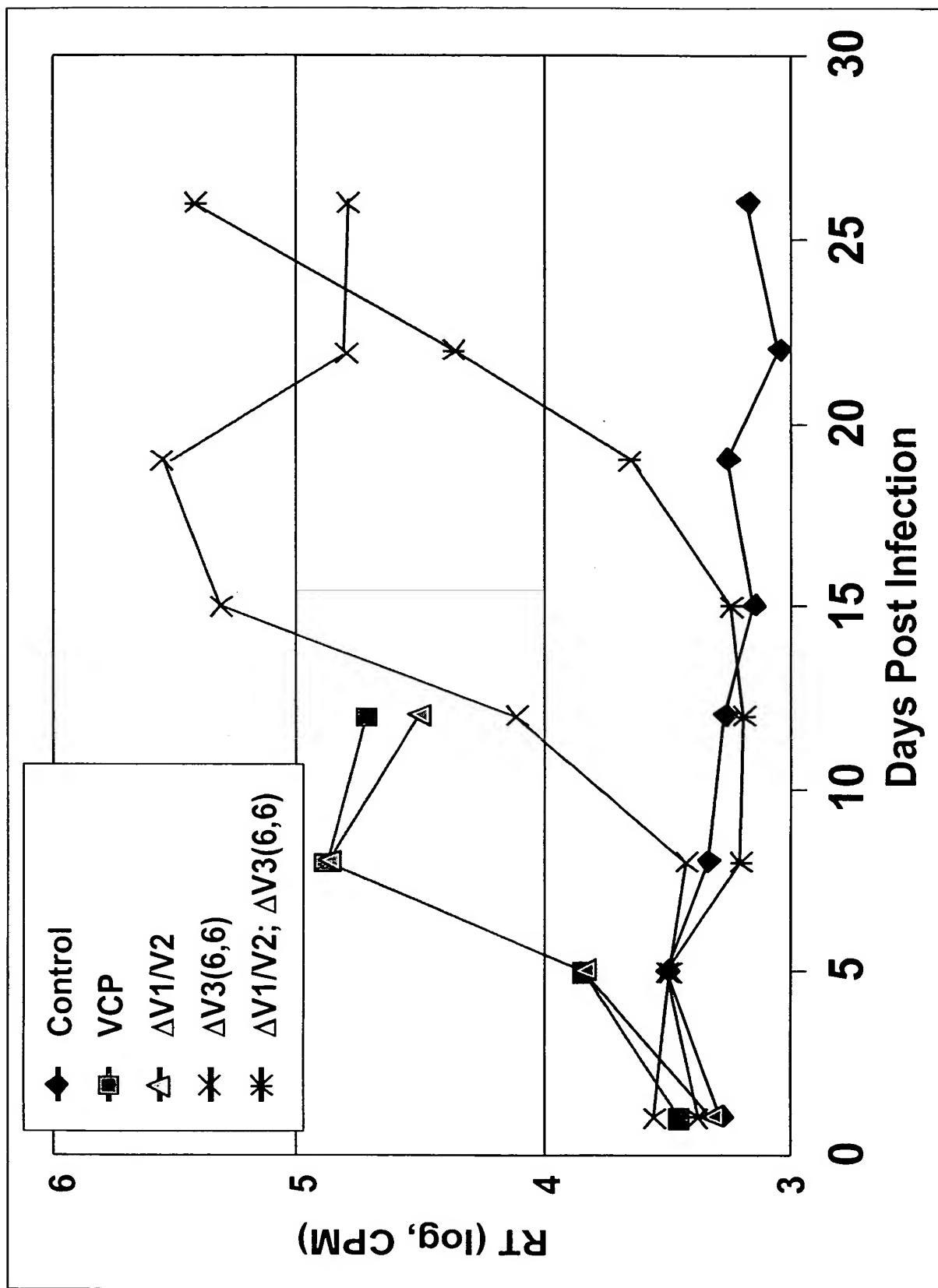


FIG. 3A

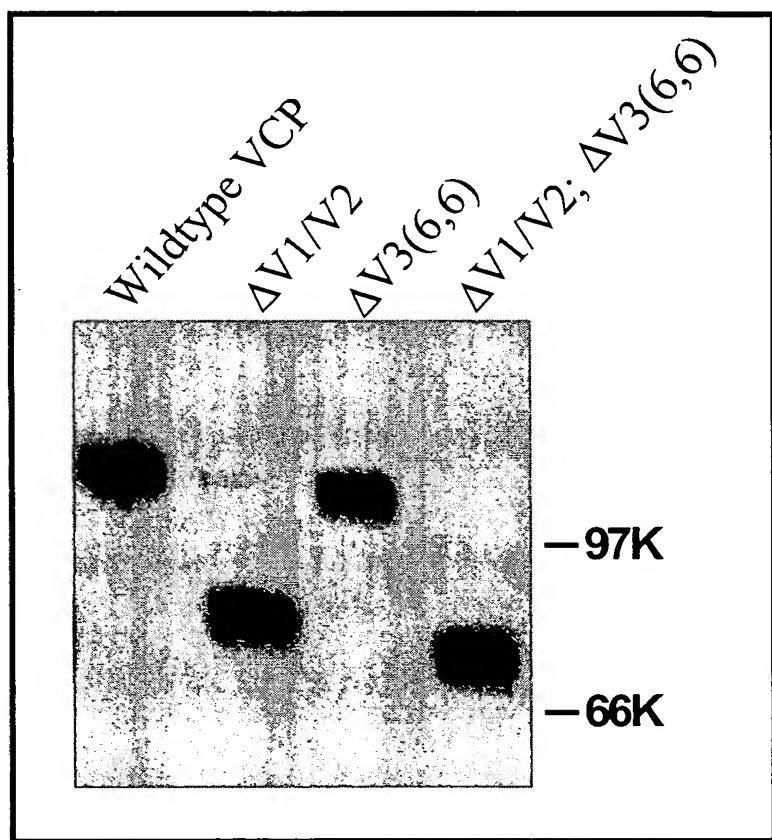


FIG. 3B

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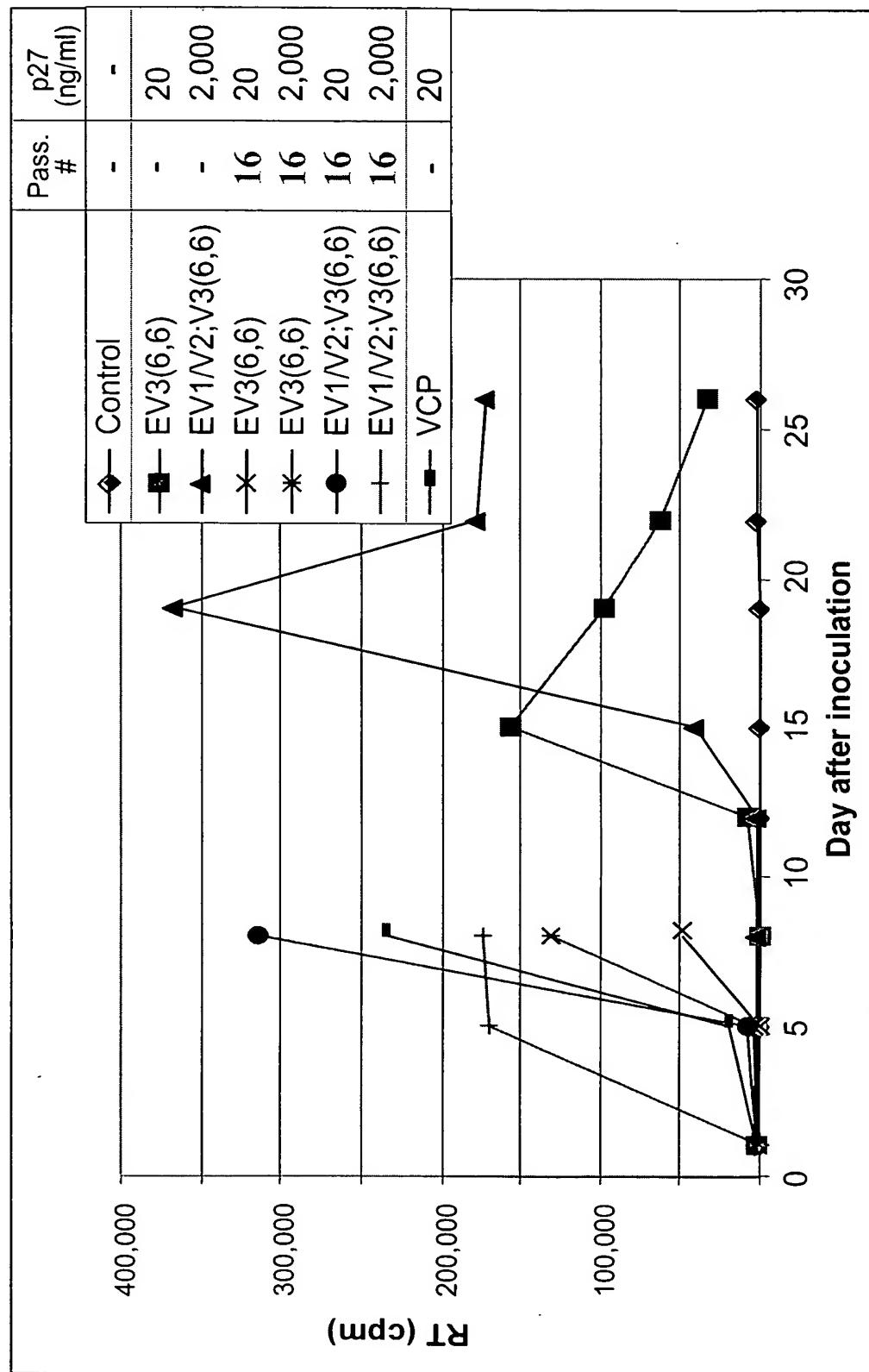


FIG. 4

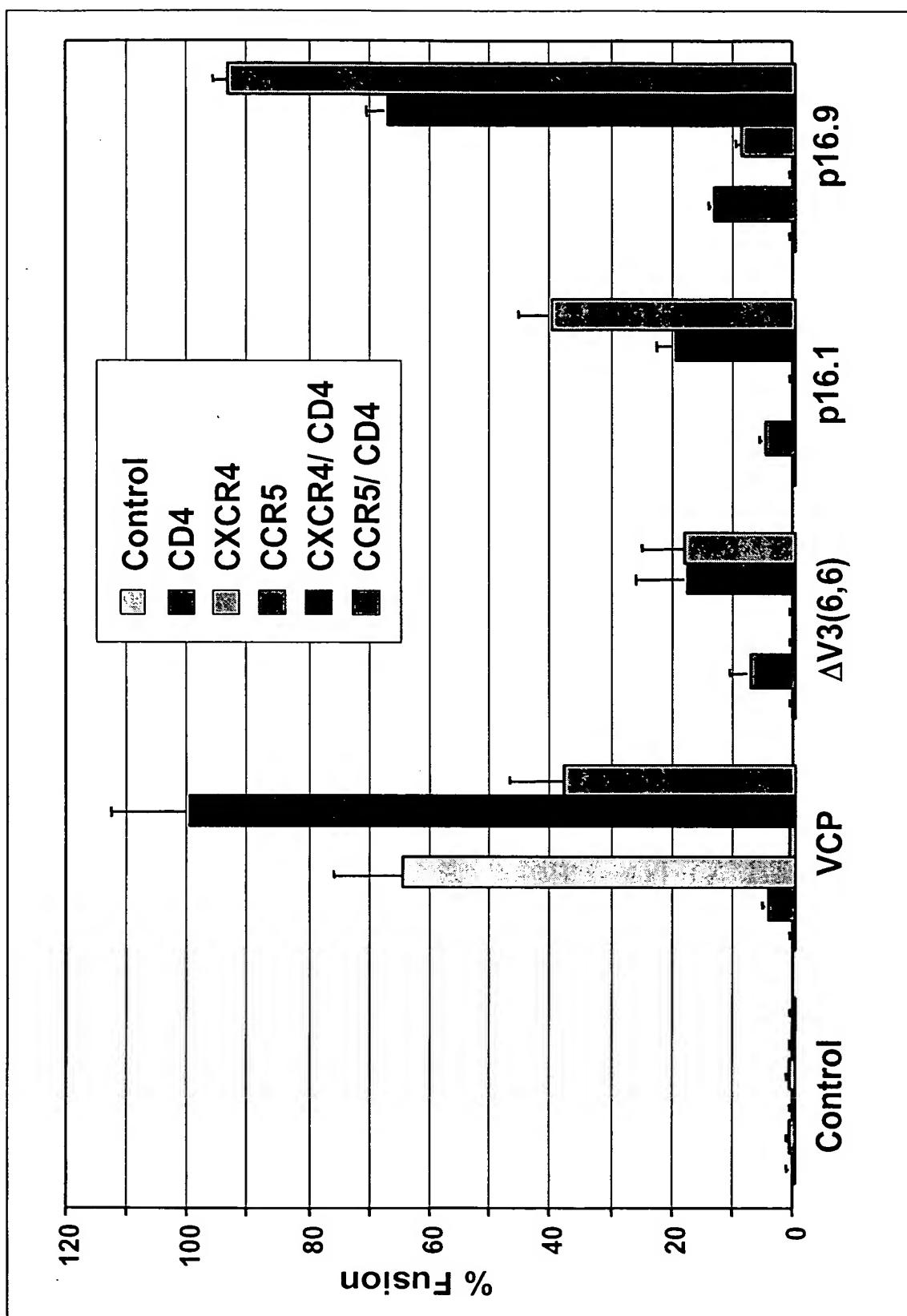


FIG. 5A

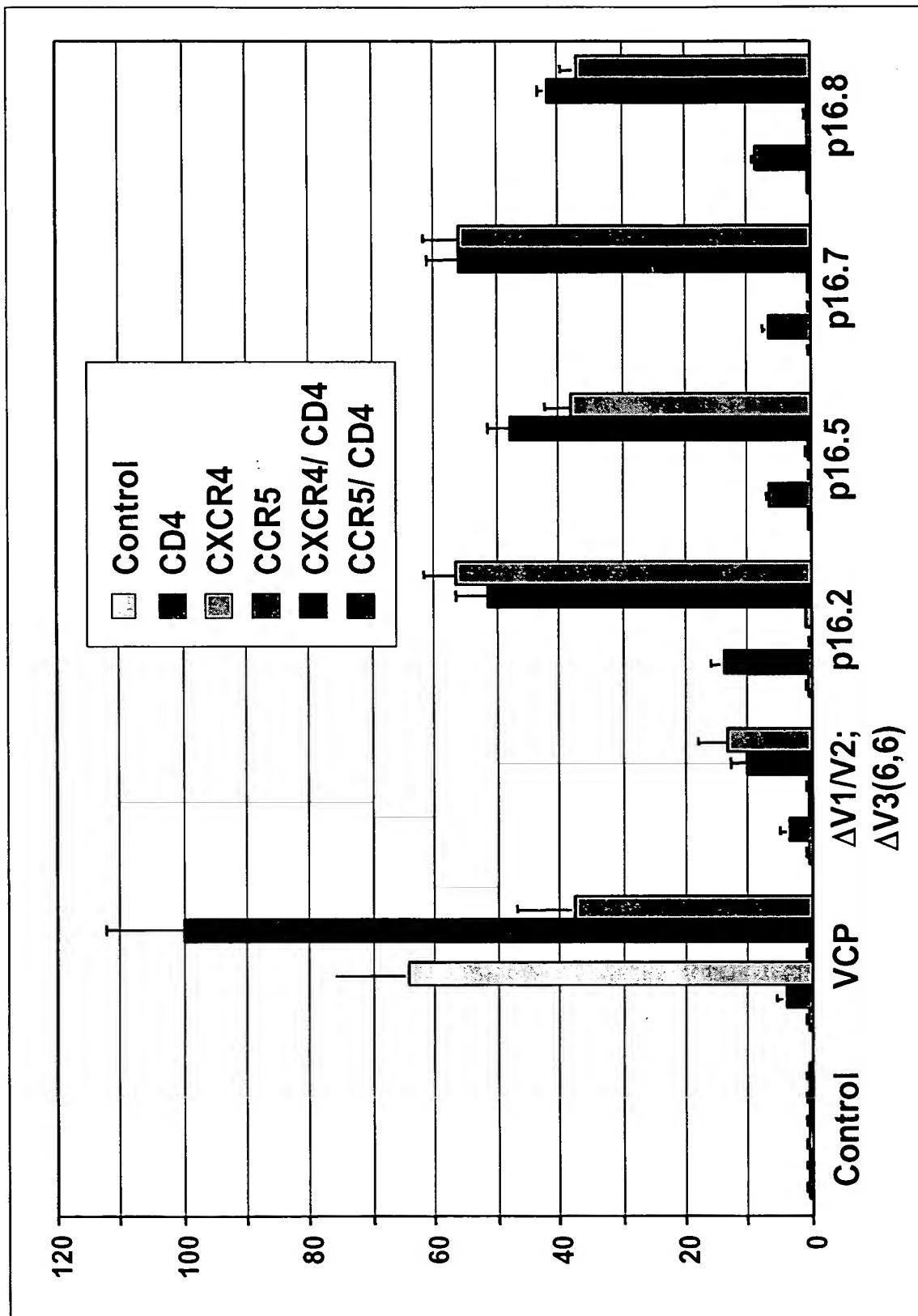


FIG. 5B

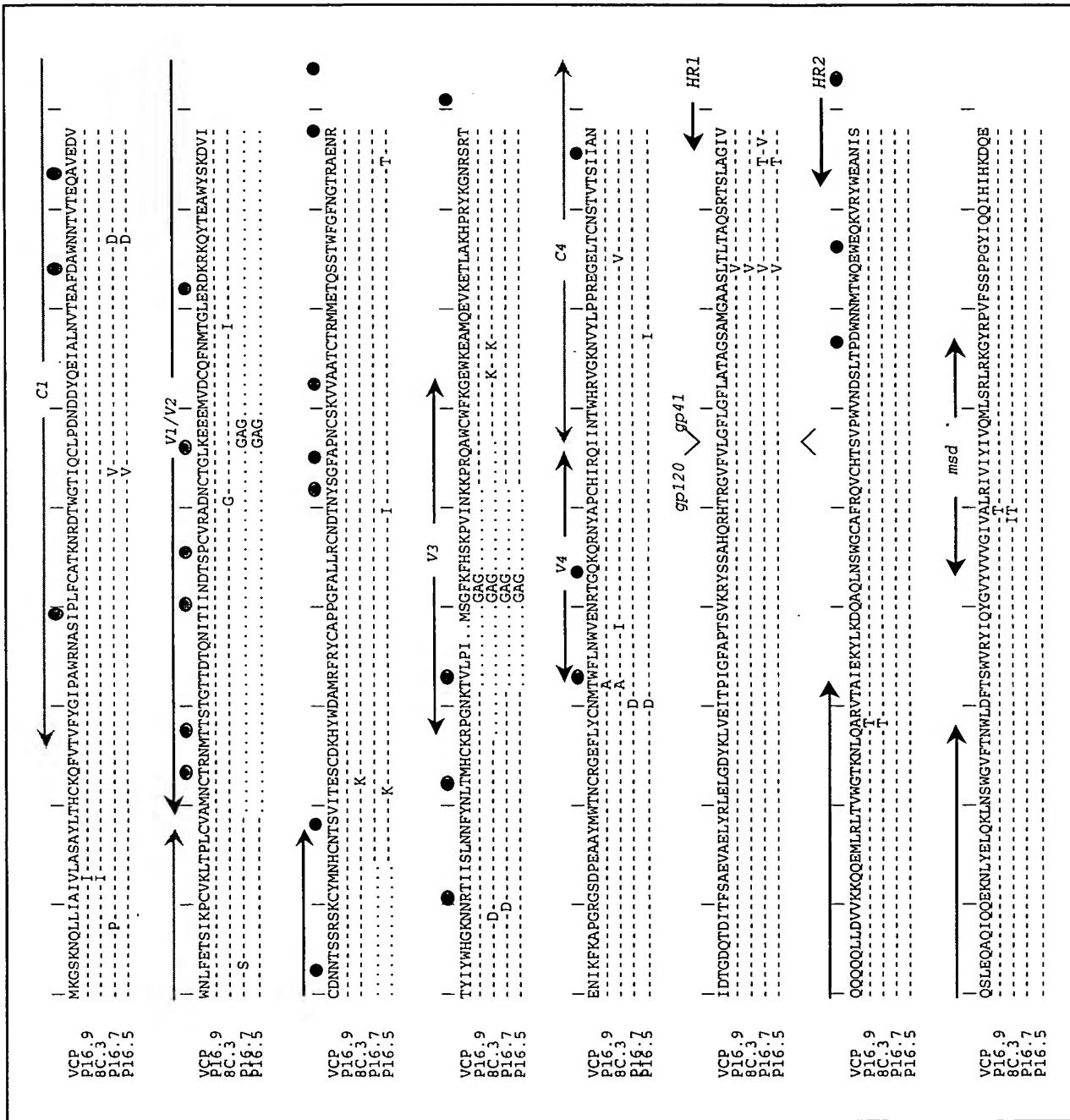


FIG. 6

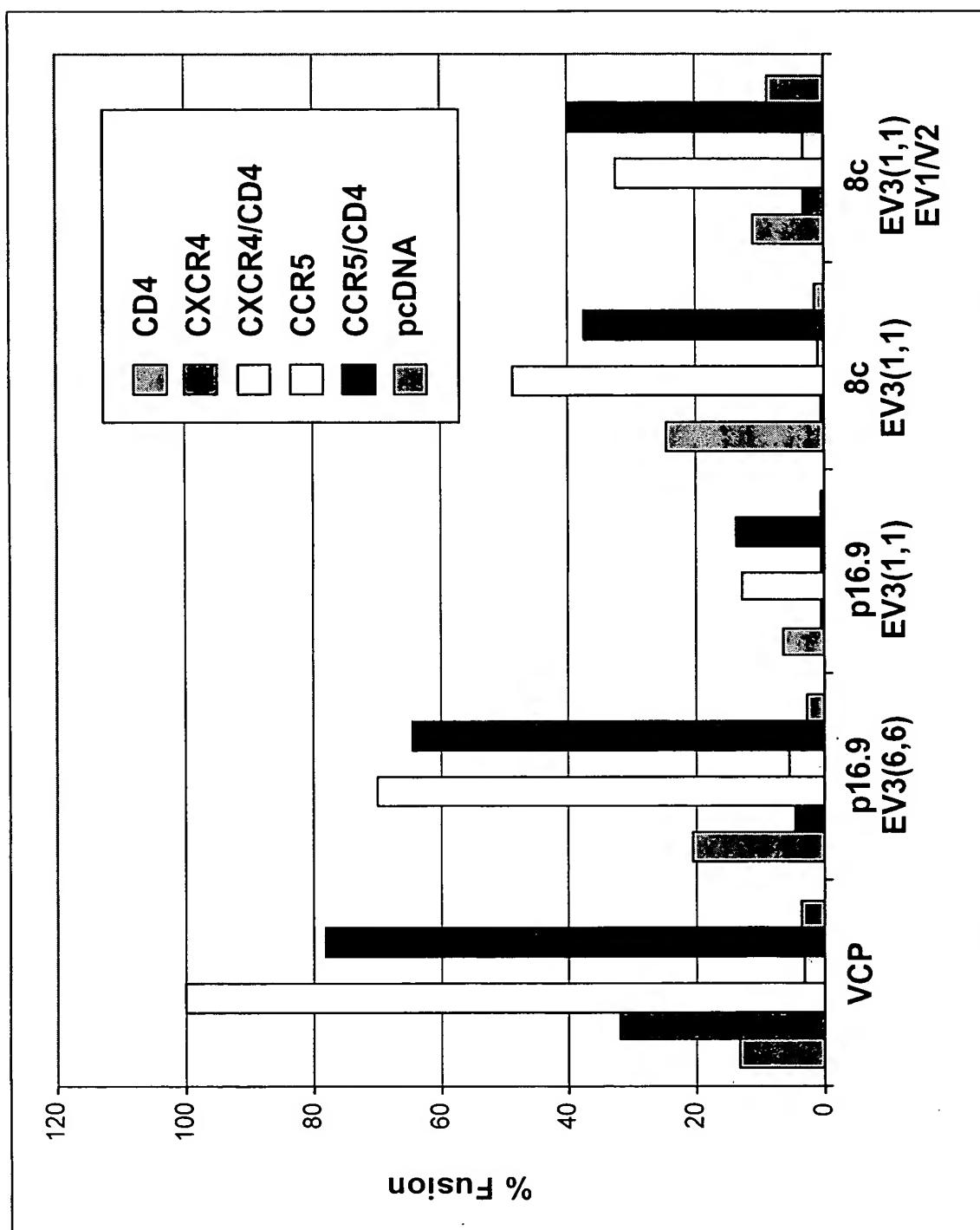


FIG. 7

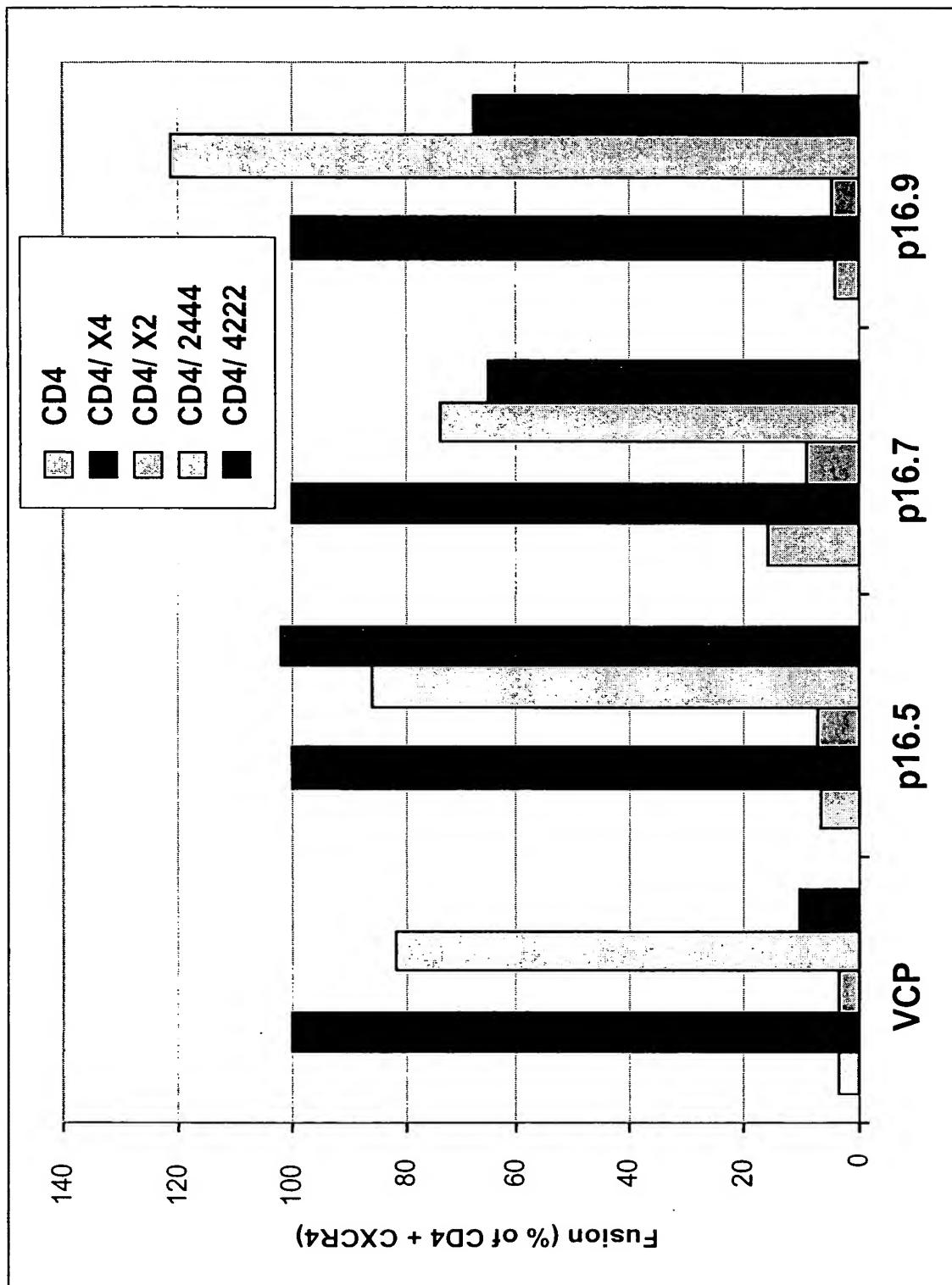


FIG. 8

FIG. 9A-1

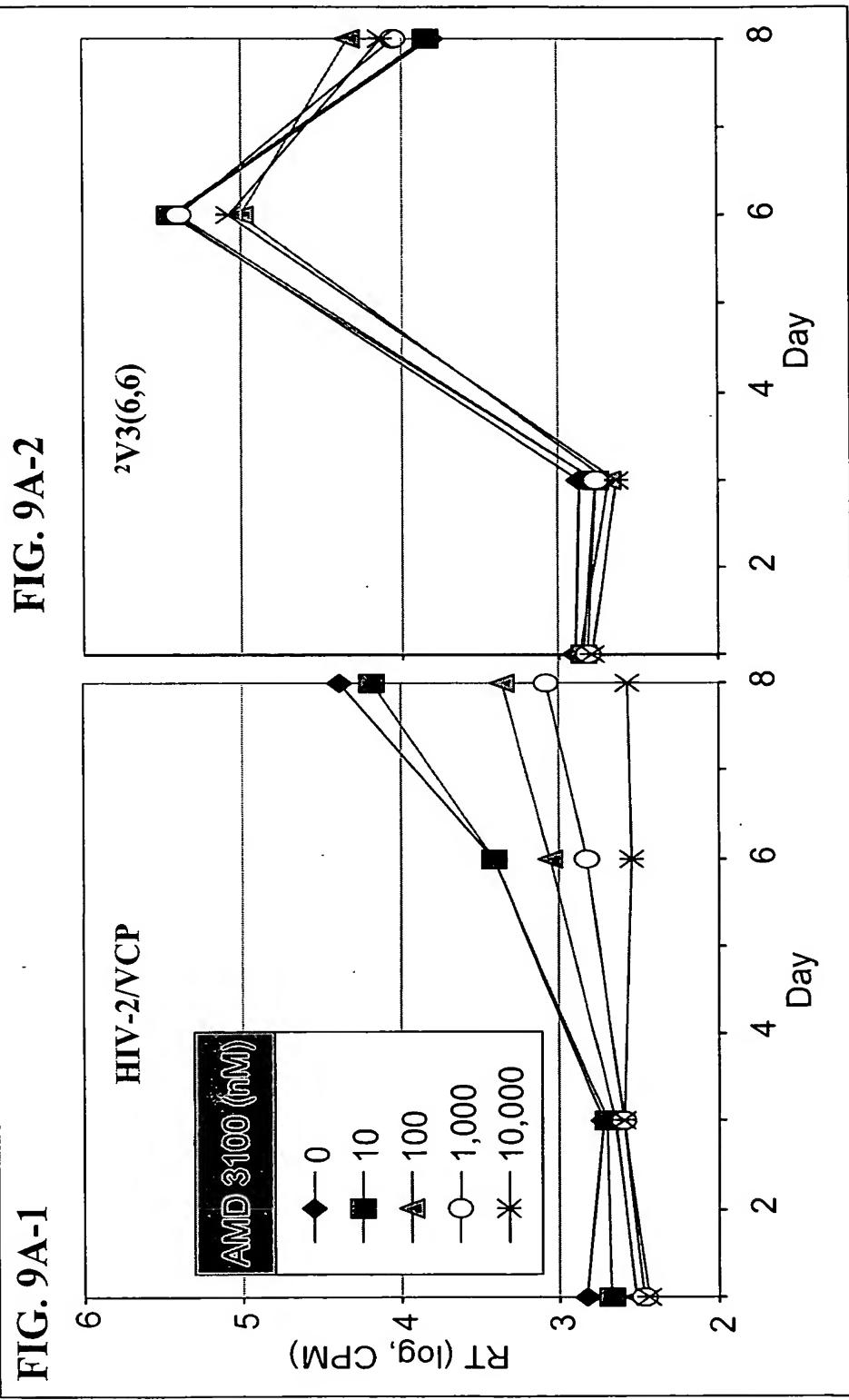


FIG. 9A-2

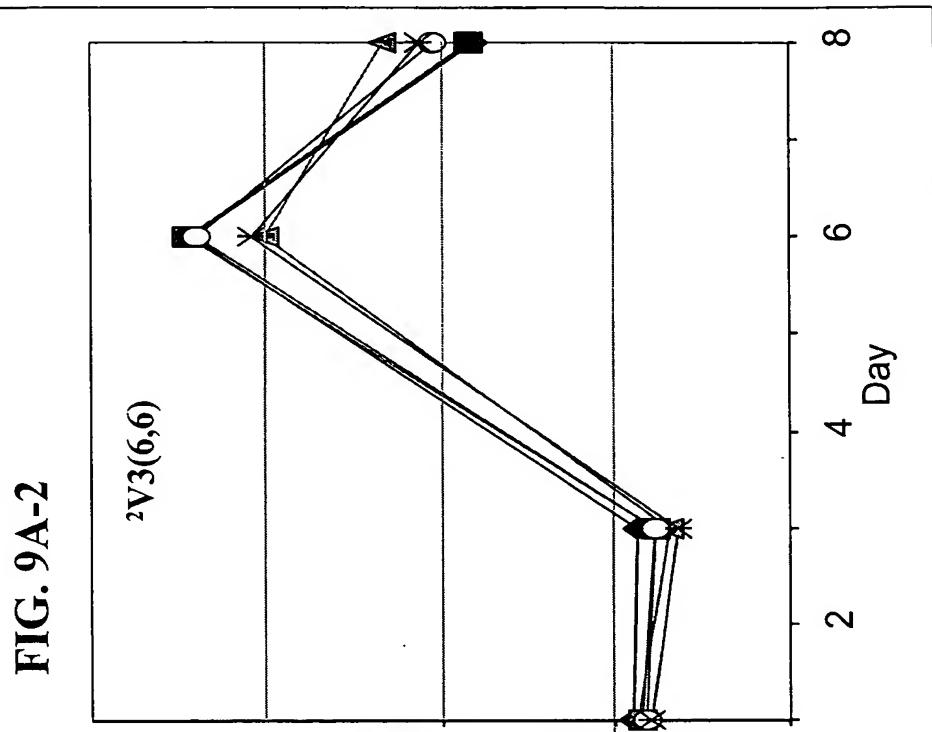
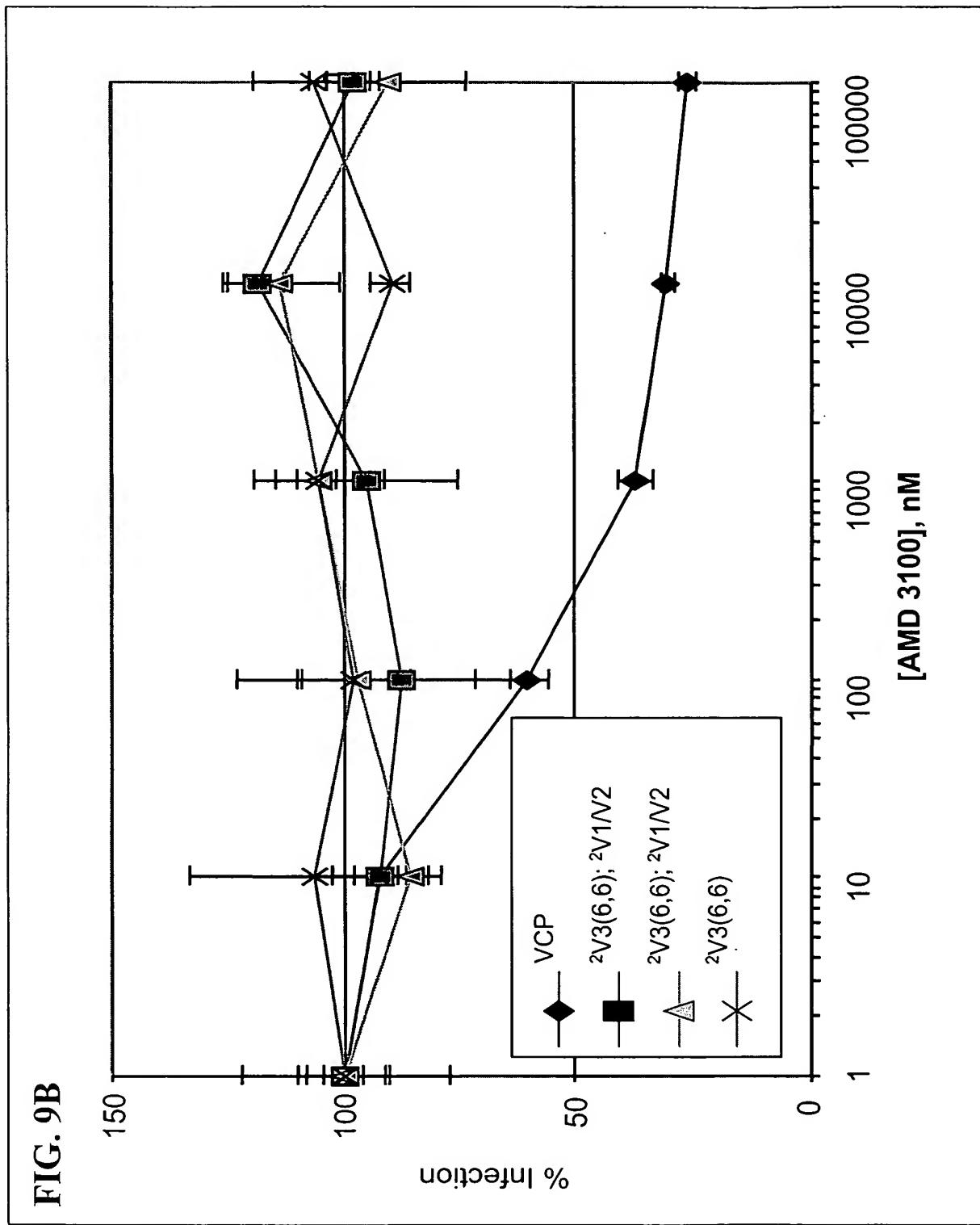


FIG. 9B



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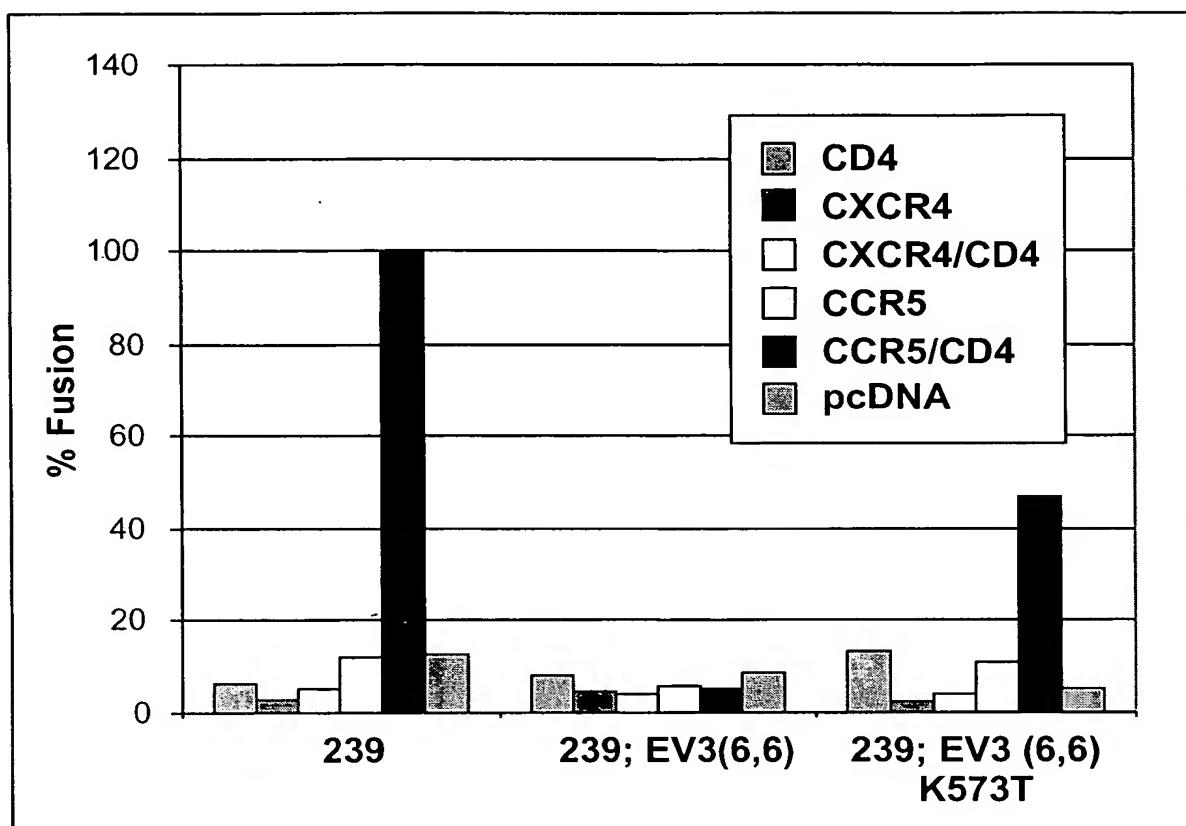


FIG. 10

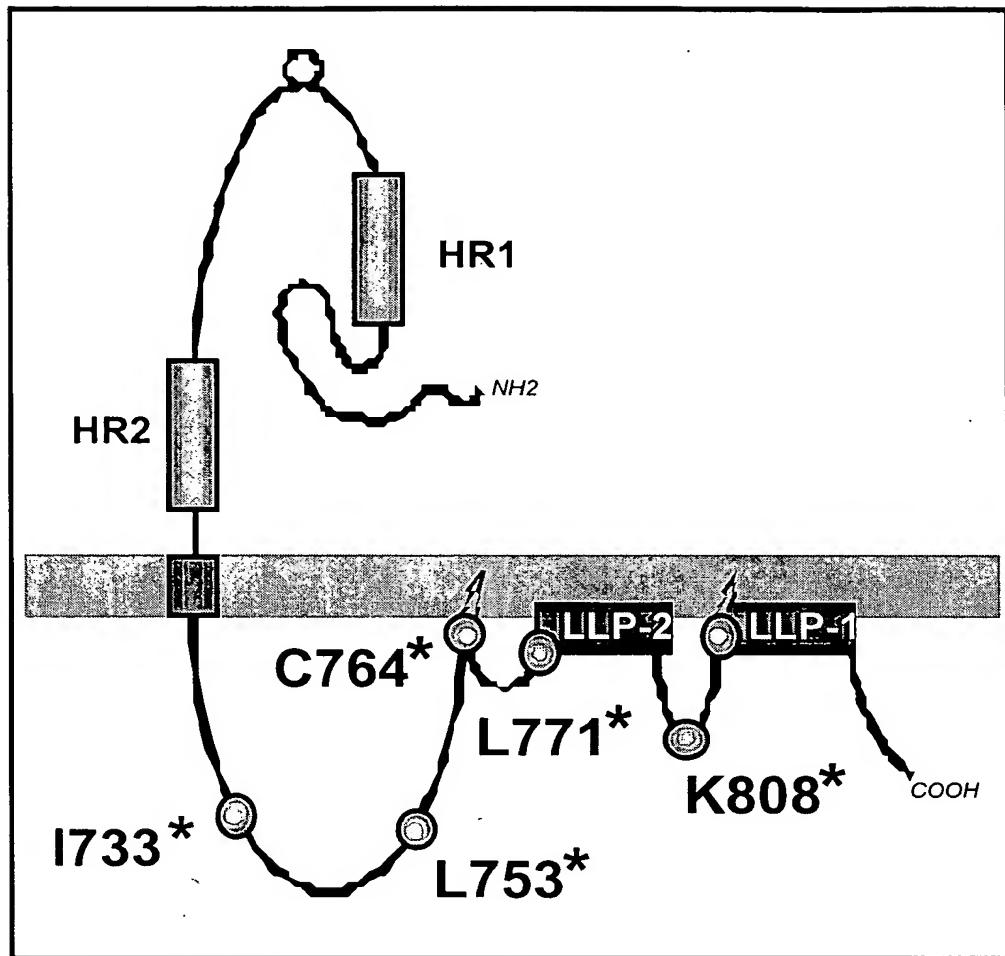


FIG. 11

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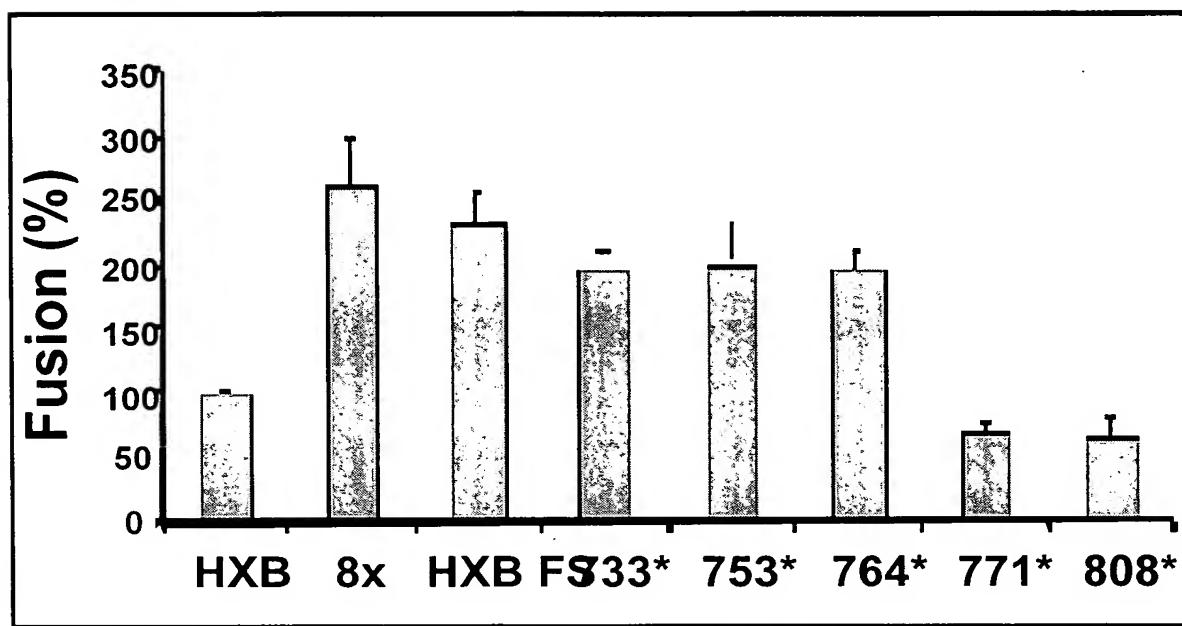


FIG. 12A

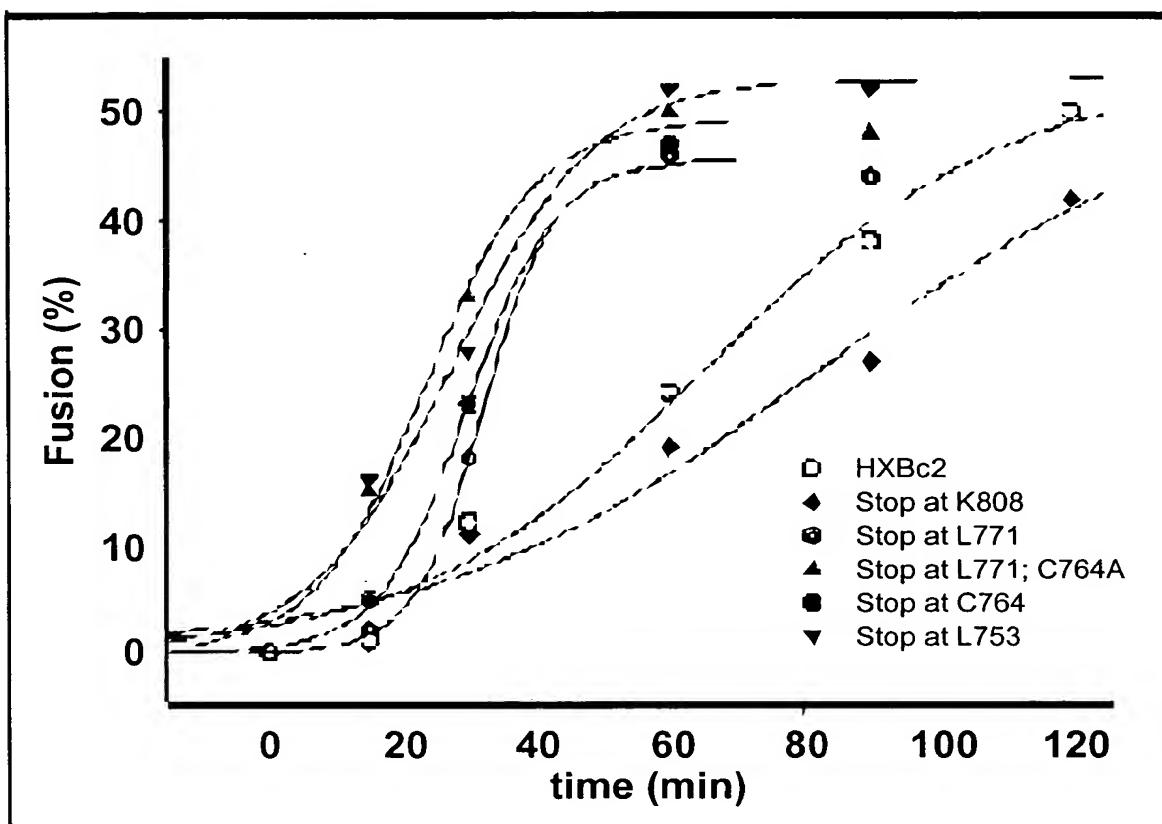


FIG. 12B

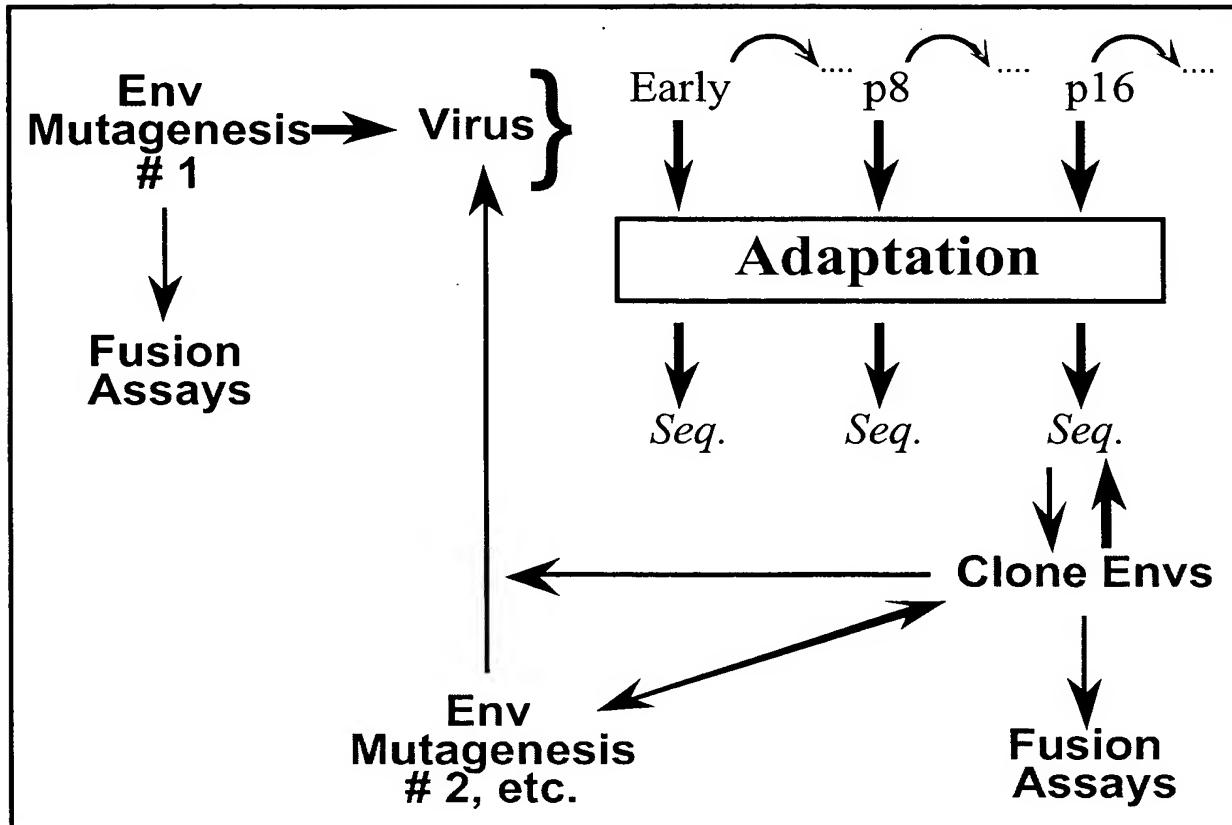


FIG. 13

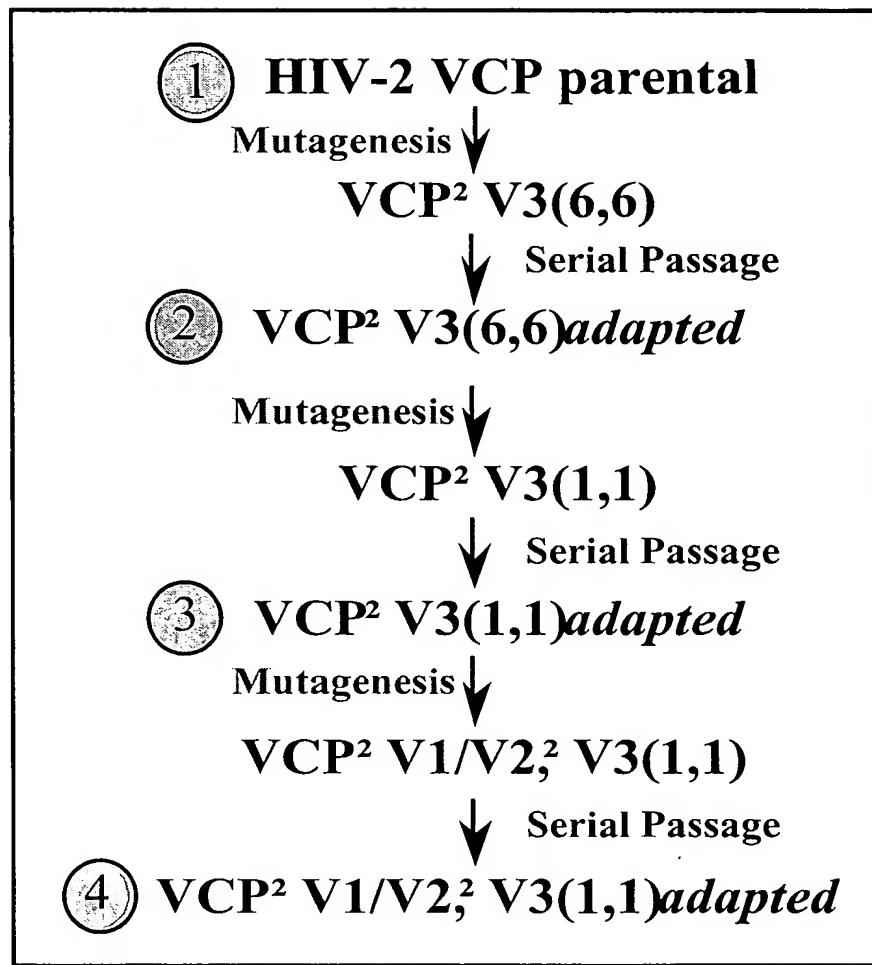


FIG. 14

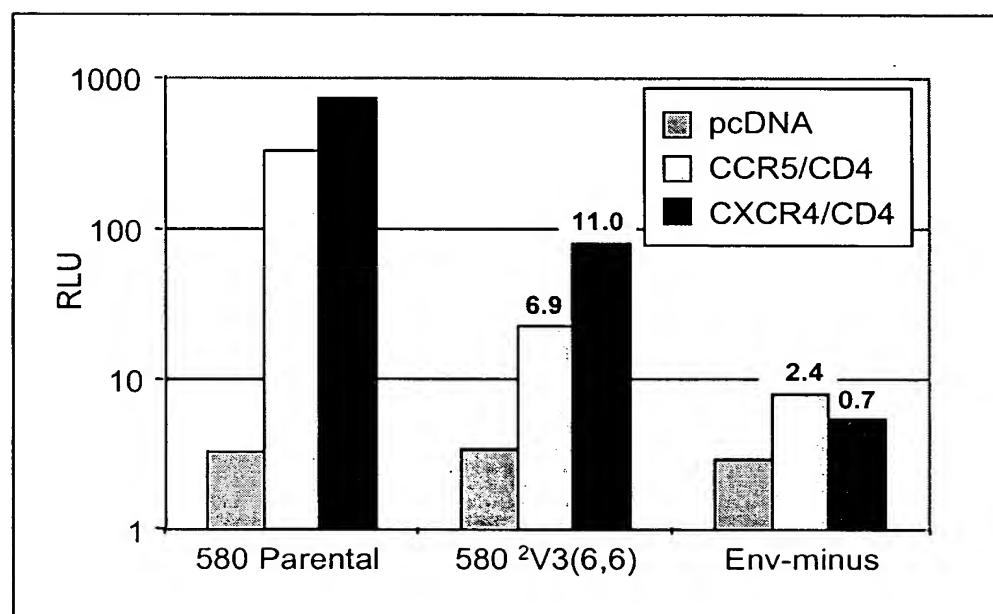


FIG. 15

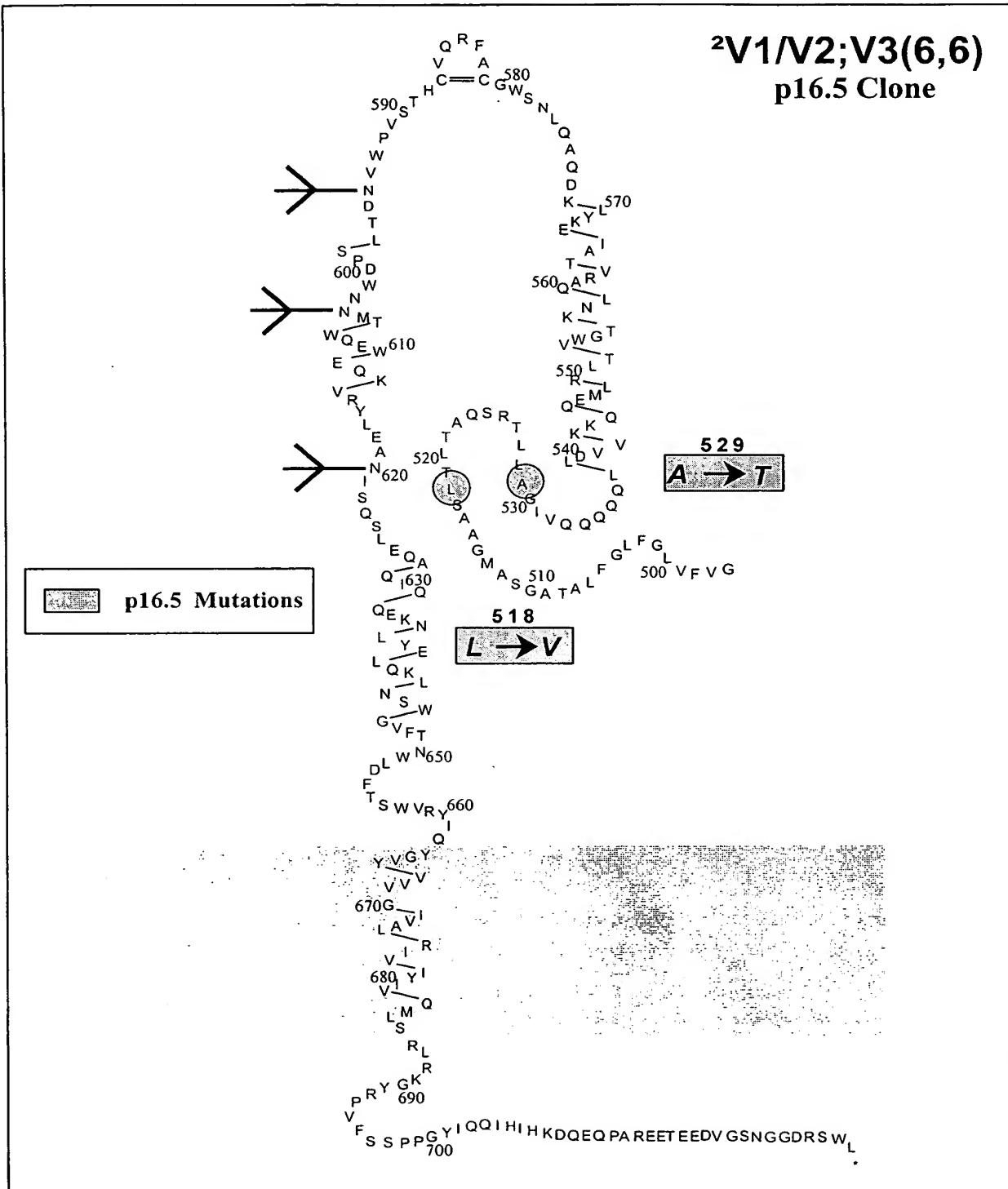


FIG. 16

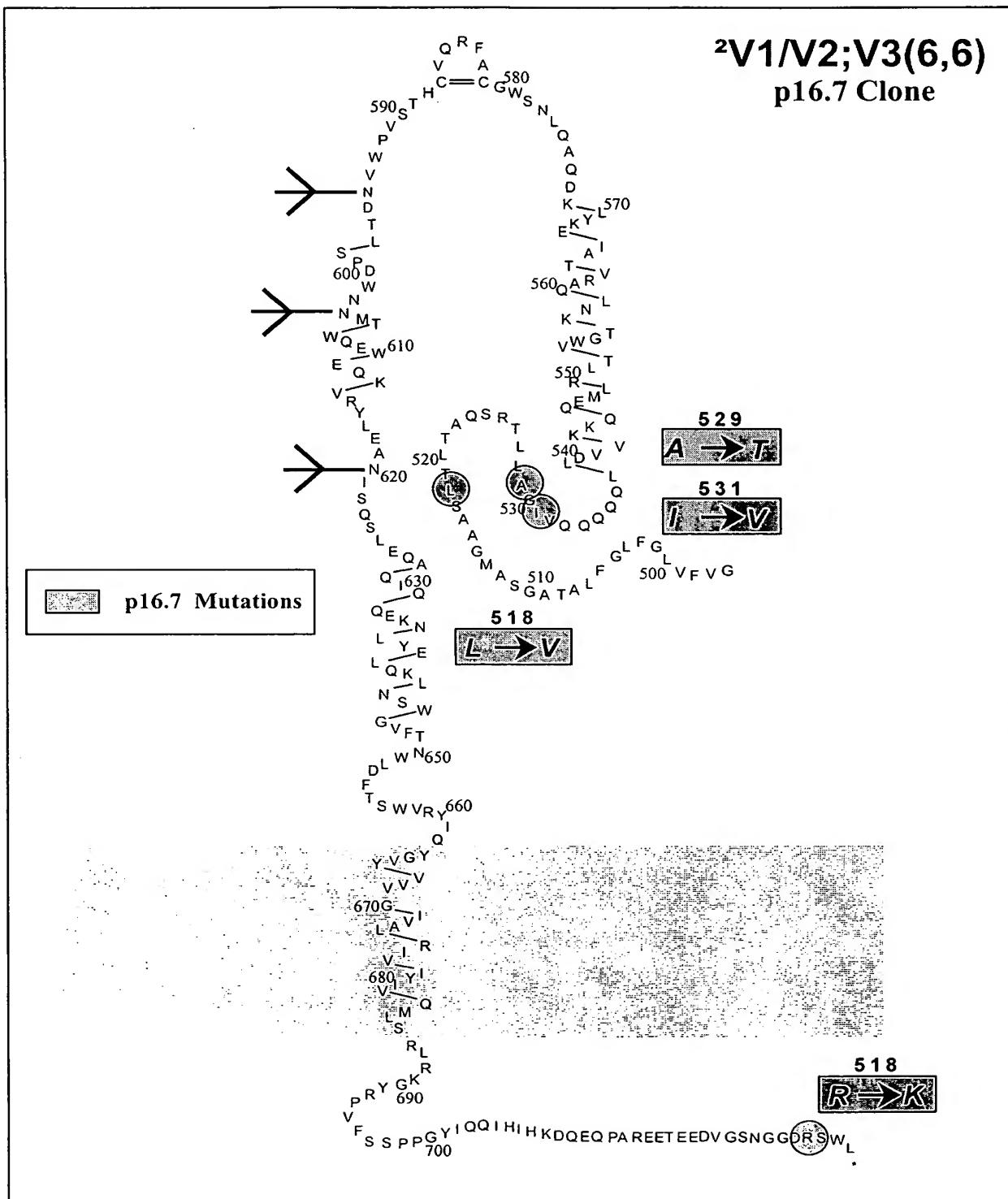


FIG. 17

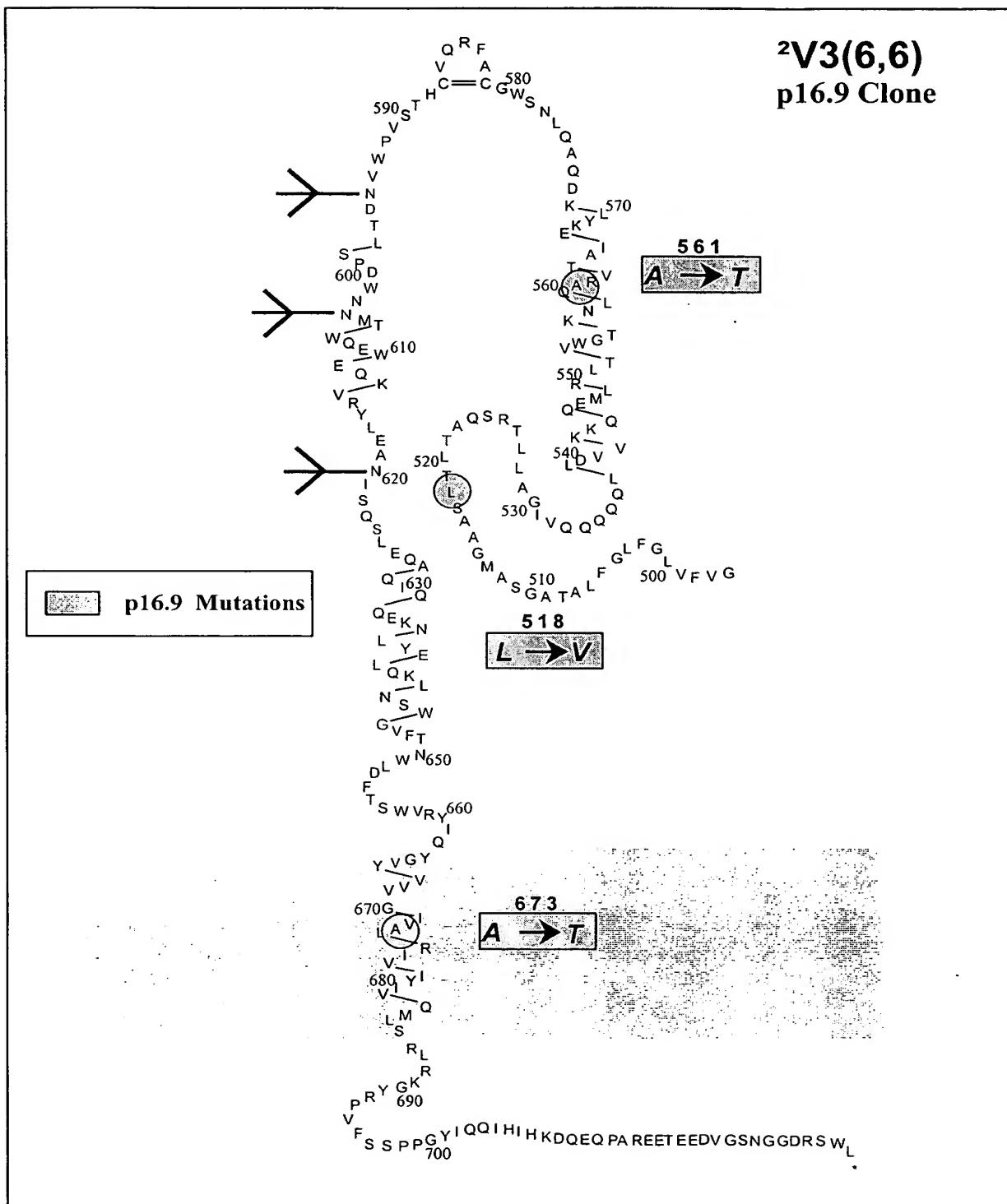


FIG. 18

FIG. 19A

MKGSKNQLLIAI I LASAYLTHCKQFVTVFYGI PAWRNASI PLFCATKNRDTWGTIQCLPDND
DYQEIALNVTEAFDAWNNTVTEQAVEDVWNLFETS IKPCVKLTPLCVAMNCTRNMTTSTGTT
DTQNIITIINDTSPCVRADNCTGLKEEMVDCQFNMTGLERDKRQYTGTWYSKDVICDNNTS
SRSKCYMNHCNTSVITKSCDKHYWDAMRFRYCAPPGFALLRCNDTNYSGFAPNC SKVVAATC
TRMMETQSSTWFGFNGTRAENRTYIYWHGKNNRTIISLNNFYNLTMHCKGAGWCWFKGEWKE
AMQEVKETLAKHPRYKGNRSRTEENIKFKAPGRGSDPEAAYMWTNCRGEFLYCNMAWFLNWVD
NRTGRKQRNYAPCHIRQIINTWHRVGKNIYLPPREGELACNSTVTSIIANIDTDQTDITFS
AEVAELYRLELGDYKLVEITPIGFAPTSVKRYSSAHQRHTRGVFVLGFLATAGSAMGAA
SVTLTAQSRTSLAGIVQQQQQLLDVVKKQQEMRLTVWGTKNLQTRVTAIEKYLKDQAQLNS
WGCAFRQVCHTSVPWVNDSLTPDWNNMTWQEWEQKVRYWEANISQSLEQAQIQQEKNLYELQ
KLNSWGVFTNWLDFTSWVRYIQYGAYVVVGIVTLRIVIYIVQMLSRLRGYRPVFSSPPGYI
QQIHIHKDQEQPAREETEEDVGSNGGDRSWL

FIG. 19B

ATGAAGGGTAGTAAGAATCAACTGCTATTAGCTAGTGCTTACCTAACACA
 TTGCAAGCAATTGTGACTGTTTCTATGGCATAACCGCGTGGAGGAATGCATCCATTCCCC
 TGTTTGTGCAACCAAAATAGAGATACTGGGAAACCATACTGCTGCCAGACAATGAT
 GATTATCAGGAAATAGCTCTAAATGTAACAGAGGCTTCGATGCATGGAATAATACAGTAAC
 AGAACAAAGCAGTGGAGGATGTCTGGAATCTATTGAGACATCAATAAAACCATGTGCAAAT
 TAACACCCTTATGTGTAGCAATGAACACTGTACAAGGAACATGACCACATCCACAGGGACCACA
 GACACCCAAATATCACAATTATAATGACACTTCGCCATCGTACGTGCAGACAACTGCAC
 AGGATTAAGGAGGAAGAAATGGTCAGTCACTGTTAATATGACAGGATTAGAGAGAGACA
 AGAGAAAACAGTATACTGGAACATGGTACTCAAAAGATGTGATTGTGACAATAACACCTCA
 AGTCGGAGCAAGTGTACATGAACCATTGCAATACATCAGTCATCACAAAGTCATGTGATAA
 GCACTATTGGATGCTATGAGGTTAGATACTGTGCACCACGGGTTTGCCCTACTAAGAT
 GCAATGATACTAATTATTCAAGGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACATGC
 ACCAGAAATGATGGAAACGCAATCTCTACATGGTTGGATTAAATGGCACTAGAGCAGAAAA
 TAGAACATATATATTGGCATGGTAAAAATAACAGAACTATTATCAGCTTAAATAACTTT
 ATAATCTCACTATGCATTGTAAGGGTCCGGCTGGTGTGTTCAAAGGGAATGGAAAGGAA
 GCCATGCAGGAGGGTAAGGAGACCCCTGCGAACATCCCAGATATAAAGGGAACAGGAGCCG
 CACAGAGAATATTAAATTAAAGCACCAGGAAGAGGCTCAGACCCAGAAGCAGCATACTGT
 GGACTAACTGCAGAGGGAAATTCTCTACTGCAACATGGCTGGTCCCTCAACTGGTAGAT
 AACAGGACGGGTCGAAACAGCGCAATTATGCACCGTGCATATAAGGCAAATAATTAAAC
 TTGGCACAGGGTAGGGAAAAACATATATTGCCTCCAGGGAAAGGGAGTTGGCCTGCAACT
 CAACAGTGACCAGCATAATTGCCAACATTGATACTGGAGATCAAACAGATATTACCTTAGT
 GCAGAGGTGGCAGAACTATACGATTGAAATTGGAGATTACAAATTAGTAGAAATCACACC
 AATTGGCTCGCACCTACATCAGTAAAGAGATACTCCTCTGCTCACCAGAGACATACAAGAG
 GTGTGTTGCTAGGGTCTTGGGTTCTCGCAACGGCAGGTTCTGCAATGGCGCG
 TCGGTGACGCTGACGCCAGTCCGGACTTCATTGGCTGGGATAGTGCAGCAACAGCAACA
 GCTGTTGGACGTTCAAGAAACAAGAAATGTTGCGACTGACCGTCTGGGAACTAAAA
 ATCTCCAGACAAGAGTCAGTCTAGAGAAATACCTAAAGGACCAGGCGAGTTAAATTCA
 TGGGGATGTGCTTAGACAAGTCTGCCACACTCTGTACCATGGTAAATGATAGCTGAC
 ACCTGATTGGAACAATATGACGTGGCAGGAATGGAACAGAAAGTCCGCTACTGGAGGCAA
 ATATCAGTCAAAGTCTAGAACAAAGCACAATTCAAGAAGAAAAGAATTGTATGAGCTGCAA
 AAATTAAATAGCTGGGTGTTTACCAATTGGCTGACTTCACCTCCTGGGTCAGGTATAT
 TCAATATGGAGCATATGTAGTAGTAGGAATAGTAACCTTAAGAATAGTAATATATAGTAC
 AGATGTTAAGTAGACTTAGGAAGGGCTATAGGCCTGTTCTCCTCCCCCCCCGGTTATATC
 CAACAGATCCATATCCACAAGGACCAGGAACAGCCAGCCAGAGAAGAAACAGAAGAACGT
 TGGAAAGCAACGGTGGAGACAGATCTTGGCTTAG

FIG. 19C

MKGSKNQLLIAII LASAYLTHCKQFVTVFYGI PAWRNASI PLFCATKNRDTWGTIQCLPDND
DYQEIALNVTEAFDAWNNTVTEQAVEDVWNLFETS IKPCVKLTPLCVAMNCTRNMOTTSTGTT
DTQNIITINDTSPCVRADNCTGLKEEMVDCQFNMTGLERDKRQYTGTWYSKDVICDNNTS
SRSKCYNHCNTSVITKSCDKHYWDAMFRYCAPPGFALLRCNDTNYSGFAPNC SKVVAATC
TRMMETQSSTWFGFNGTRAENRTIYWHGKNNRTIISLNNFYNLTMHCKGAGWCWFGEWKE
AMQEVKETLAKHPRYKGNSRTE NIKFKAPGRGSDPEAAYMWTNCRGEFLYCNMAWFLNWVD
NRTGRKQRNYAPCHIRQIINTWHRVGKNIYLPPREGELACNSTVTSIIANIDTGDQTDITFS
AEVAELYRLELGDYKLVEITPIGFAPTSVKRYSSAHQRHTR

FIG. 19D

ATGAAGGGTAGTAAGAACATCAACTGCTGATTGCTATTATACTAGCTAGTGCTTACCTAACACA
TTGCAAGCAATTGTGACTGTTCTATGGCATACCCCGTGGAGGAATGCATCCATTCCCC
TGTTTGTGCAACCAAAATAGAGATACTGGGAAACCATACTGCTGCCAGACAATGAT
GATTATCAGGAAATAGCTCTAAATGTAACAGAGGCTTCGATGCATGGAATAATACAGTAAC
AGAACAAAGCAGTGGAGGATGTCTGGAATCTATTGAGACATCAATAAAACATGTGCAAAT
TAACACCCCTTATGTGAGCAATGAACATGTACAAGGAACATGACCACATCCACAGGGACCACA
GACACCCAAAATATCACAATTATAATGACACTTCGCCATCGTACGTGCAGACAACTGCAC
AGGATTAAAGGAGGAAGAAATGGTCACTGTCAGTTAATATGACAGGATTAGAGAGAGACA
AGAGAAAACAGTAACTGGAACATGGTACTCAAAGATGTGATTGTGACAATAACACCTCA
AGTCGGAGCAAGTGTACATGAACCATTGCAATACATCAGTCATCACAAAGTCATGTGATAA
GCACTATTGGATGCTATGAGGTTAGATACTGTGCACCACCGGTTTGCCTACTAAGAT
GCAATGATACTAATTATTCAAGGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACATGC
ACCAGAAATGATGAAACGCAATCTCTACATGGTTGGATTAAATGGCACTAGAGCAGAAAA
TAGAACATATATATTGGCATGGAAAAATAACAGAACTATTATCAGCTTAAATAACTTTT
ATAATCTCACTATGCATTGTAAGGGTCCGGCTGGTGTGTTCAAAGGCGAATGGAAGGAA
GCCATGCAGGAGGTGAAGGAGACCCCTGCGAAACATCCCAGATATAAGGGAACAGGAGCCG
CACAGAGAATATTAATTAAAGCACCAGGAAGAGGGCTCAGACCCAGAAGCAGCATACTGT
GGACTAACTGCAGAGGGAAATTCTACTGCAACATGGCTGGTCTCAACTGGTAGAT
AACAGGACGGGTCGAAACAGCGCAATTATGCACCGTGCATATAAGGCAAATAATTAAAC
TTGGCACAGGGTAGGAAAAACATATAATTGCCTCCAGGGAAAGGGAGTTGCCCTGCAACT
CAACAGTGACCAGCATAATTGCCAACATTGATAACGGGAGATCAAACAGATATTACCTTAGT
GCAGAGGTGGCAGAACTATACGATTGAAATTGGGAGATTACAAATTAGTAGAAATCACACC
AATTGGCTTCGCACCTACATCAGTAAAGAGATACTCCTCTGCTCACCAGAGACATACAAGA

FIG. 19E

GVFVLGFLGLATAGSAMGAASVLTQASRTSLAGIVQQQQQLLDVVKKQQEMRLTVWGTK
NLQTRVTAIEKYLKDQAQLNSWGCARQVCHTSVPWVNDSLTPDWNNMTWQEWEQKVRYWEA
NISQSLEQAQIQQEKNLYELQKLN SWGVFTNWLDFTSWVRYIQYGAYVVVGIVTLRIVIYIV
QMLSRLRKGYRPVFSSPPGYIQQIHIHKDQEQPAREETEEDVGSNGGDRSWL

FIG. 19F

GGTGTGTCGTGCTAGGGTTCTGGGTTCTCGAACGGCAGGTTCTGCAATGGCGCGGC
GTCGGTGACGCTGACCGCCCAGTCCCGACTTCATTGGCTGGATAGTGCAGCAACAGCAAC
AGCTGTTGGACGTGGTCAAGAAACAACAAGAAATGTTGCGACTGACCGTCTGGGAACTAAA
AATCTCCAGACAAGAGTCAGTCTAGAGAAATACCTAAAGGACCAGGCGAGTTAAATTCA
ATGGGGATGTGCGTTAGACAAGTCTGCCACACTCTGTACCATGGTAAATGATAGCTTGA
CACCTGATTGGAACAATATGACGTGGCAGGAATGGGAACAGAAAGTCCGCTACTGGGAGGCA
AATATCAGTCAAAGTCTAGAACACAAGCACAAATTCAAGCAAGAAAAGAATTGTATGAGCTGCA
AAAATTAATAGCTGGGTGTTTACCAATTGGCTGACTTCACCTCCTGGTCAGGTATA
TTCAATATGGAGCATATGTAGTAGTAGGAATAGTAACTTAAGAATAGTAATATATAGTA
CAGATGTTAAGTAGACTTAGGAAGGGCTATAGGCCTGTTCTCCTCCCCCGGTTATAT
CCAACAGATCCATATCCACAAGGACCAGGAACAGCCAGCCAGAGAAGAACAGAAGACG
TTGGAAGCAACGGTGGAGACAGATCTGGCTTAG

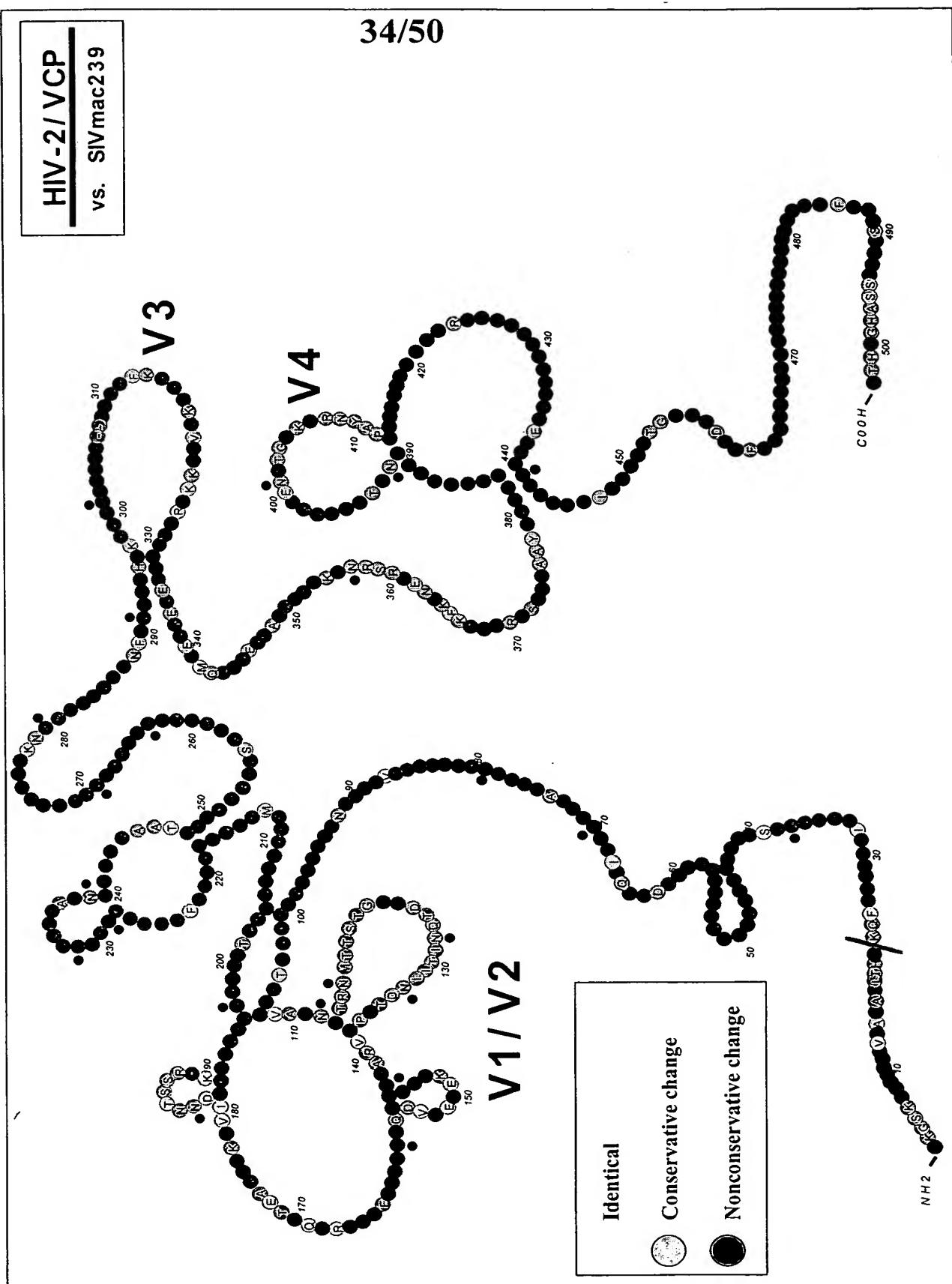


FIG. 20

FIG. 21A

MKGSKNQLLIAIVLASAYLTHCKQFVTVFYGI PAWRNASIPLFCATKNRDTWGTIQC
LPDNDDYQEIALNVTEAFDAWNNTVTEQAVEDVWNLFETSIKPCVKLTPLCVAMNCT
RNMTTSTGTTDTQNITIINDTSPCVRADNCTGLKEEMVDCQFNMTRDKRQYT
EAWYSKDVICDNNTSSRSKCYMNHCNTSVITESCDKHYWDAMRFRYCAPPGFALLRC
NDTNYSGFAPNC SKVVAATCTRMMETQSSTWFGNGTRAENRTIYWHGKNNRTIIS
LNNFYNLTMHCKRPGNKT VLPIMSGFKFH SKPVINKPRQAWCWFKG EWKEAMQEVK
ETLAKHPRYKGNRSRTENIKFKAPGRGSDPEAAYMWTNCRGEFLYCNMTWFLNWVDN
RTGQKQRNYAPCHIRQIINTWHRVGKNVYLPPREGELCNSTVTSIIANIDTGDQTD
ITFSAEVAELYRLELDYKLVEITPIGFAPTSVKRYSSAHQRHTRGVFVLGFLGFLA
TAGSAMGAASLTTLTAQSRTSLAGIVQQQQQLLDVVKKQQEMRLTVWGTKNLQARVT
AIEKYLKDQAQLNSWGCAFRCVCHTSVPWVNDSLTPDWNNMTWQEWEQKVRYWEANI
SQSLEQAQIQQEKNLYELQKLNSWGVFTNWLDFTSWVRYIQYGVYVVVGIVALRIVI
YIVQMLSRLRKGYRPVFSSPPGYIQQIHIKDQEQPAREETEEDVGSNGGDRSWL

FIG. 21B

ATGAAGGGTAGTAAGAATCAACTGCTGATTGCTATTGTACTAGCTAGTGCTTACCTA
 ACACATTGCAAGCAATTGTGACTGTTTCTATGGCATACCGCGTGGAGGAATGCA
 TCCATTCCCCTGTTGTGCAACCAAAATAGAGATACTTGGGGACCATAACAGTGC
 TTGCCAGACAATGATGATTATCAGGAAATAGCTCTAAATGTAACAGAGGCTTCGAT
 GCATGGAATAATACAGTAACAGAACAGCAGTGGAGGATGTCTGGAATCTATTGAG
 ACATCAATAAAACCATGTGCAAATTAAACACCCCTATGTGTAGCAAATGAACGTACA
 AGGAACATGACCACATCCACAGGGACCACAGACACCCAAAATATCACAATTATAAAT
 GACACTTCGCCATGCGTACGTGCAGACAACTGCACAGGATTAAAGGAGGAAGAATG
 GTCGACTGTCAAGTTAATATGACAGGATTAGAGAGAGACAAGAGAAAACAGTATACT
 GAAGCATGGTACTCAAAAGATGTGATTGTGACAATAACACCTCAAGTCGGAGCAAG
 TGTTACATGAACCATTGCAATACATCAGTCATCACAGAGTCATGTGATAAGCACTAT
 TGGGATGCTATGAGGTTAGATACTGTGCACCACCGGTTTGCCCTACTAAGATGC
 AATGATACTAATTATTCAAGGCTTGACCTAATTGCTCTAAAGTAGTAGCTGCTACA
 TGCACCAGAATGATGGAAACGCAATCTCTACATGGTTGGCTTAATGGCACTAGA
 GCAGAAAATAGAACATATATCTATTGGCATGGTAAAATAACAGAACTATTATCAGC
 TTAAATAACTTTATAATCTCACTATGCATTGTAAGAGGCCGGAAATAAGACAGTG
 TTACCAATAATGTCAGGGTTAAGTTCACTCCAAGCCGGTCATCAATAAAAAACCC
 AGGCAAGCATGGTGTGGTCAAAGGCGAATGGAAGGAAGGCCATGCAGGAGGTGAAG
 GAGACCCCTGGCAAACATCCCAGATATAAAGGAAACAGGAGCCGCACAGAGAATATT
 AAATTAAAGCACCAGGAAGAGGGCTCAGACCCAGAACAGCAGCATACTGTGACTAAC
 TGCAAGGGGAATTCTACTGCAACATGACTTGGTCCCTCAATTGGTAGATAAC
 AGGACGGGTCAAGAACAGCGCAATTATGCACCGTGCATATAAGGCAAATAATTAAAT
 ACTTGGCACAGGGTAGGGAAAAACGTATATTGCTCCCAGGGAAAGGGAGTTGACC
 TGCAACTCAACAGTGACCGACATAATTGCCAACATTGATACGGGAGATCAAACAGAT
 ATTACCTTAGTGCAAGGGTGCAGAACTATACCGATTGAAATTGGGAGATTACAAA
 TTAGTAGAAATCACACCAATTGGCTCGCACCTACATCAGTAAAGAGATACTCCTCT
 GCTCACCAGAGACATACAAGAGGTGTGGCTGCTAGGGTTCTGGGTTTCTCGCA
 ACGGCAGGTTCTGCAATGGCGCGCGTGTGACGCTGACCGCTCAGTCCCGGACT
 TCATTGGCTGGGATAGTGCAAGAACAGCAACAGCTGGATGGTCAAGAAACAA
 CAAGAAATGTTGCACTGACCGTCTGGGAACTAAAATCTCAGGCAAGAGTCAC
 GCTATAGAGAAATACCTAAAGGACCAGGCGCAGCTAAATTGATGGGATGTGCGTT
 AGACAAGTCTGCCACACTTCTGTACCATGGTAAATGATAGCTTGACACCTGATTGG
 AACAAATGACGTGGCAGGAATGGGAAACAAAAGTCGCTACTGGGAGGCAAATATC
 AGTCAAAGTCTAGAACAAAGCACAAATTCAAGAACAAAAGAATTGTATGAGCTGCAA
 AAATTAAATAGCTGGGTGTTTACCAATTGGCTTGACTTCACCTCCTGGTCAGG
 TATATTCAATATGGAGTTATGTTAGTAGTAGGAAATAGTAGCTTAAAGAATAGTAATA
 TATATAGTACAGATGTTAAGTAGACTTAGGAAGGGCTATAGGCCTGTTCTCCTCC
 CCCCCCGGTTATATCCAACAGATCCATATCCACAAGGACCAGGAACAGCCAGCCAGA
 GAAGAAACAGAAGAACGCTGGAAAGCAACGGTGGAGACAGATCTGGCTTAGCCG
 ATAGCATATATTCACTTCTGATCCGCTGCTGATTGCGCTTGTGATCGGGCTATAC
 AACATCTGCAGAGACTACTATCCAGGATCTCCCGATCTCCAACCAATCTCCAG
 AGTCTCCAGAGAGCACTAACAGCAATCAGAGACTGGCTGAGGCTAAAGCAGCCTAC
 CTGCAAGTATGGGTGCGAGTGGATCCAAGAACGCTTCAAGCCCTGCAAGGACTACA
 AGAGAGACTCTTGCAAGCGCGGGG

FIG. 21C

MKGSKNQLLIAIVLASAYLTHCKQFVTVFYGI PAWRNASIPLFCATKNRDTWGTIQC
LPDNDDYQEIALNVTEAFDAWNNTVTEQAIVEDVWNLFETSIKPCVKLTPLCVAMNCT
RNMTTSTGTTDTQNITIINDTSPCVRADNCTGLKEEEMVDCQFNMTGLERDKRQYT
EAWYSKDVICDNNTSSRSKCYMNHCNTSVITESCDKHYWDAMRFRYCAPPGFALLRC
NDTNYSGFAPNCVKVVAATCTRMMETQSSTWFGNGTRAENRTYIYWHGKNNRTIIS
LNNFYNLTMHCKRPGNKTLPIMSGFKFHSPVINKKPRQAWCWFGEWKEAMQEVK
ETLAHKPRYKGNRSRTENIKFKAPGRGSDPEAAYMWTNCRGEFLYCNMTWFLNWVDN
RTGQKQRNYAPCHIRQIINTWHRVGKNVYLPPREGELTCNSTVTSIIANIDTGDQTD
ITFSAEVAELYRLELGDYKLVEITPIGFAPTSVKRYSSAHQRHTR

FIG. 21D

ATGAAGGGTAGTAAGAACATGCTGATTGCTATTGTAAGCTAGTGCTTACCTA
ACACATTGCAAGCAATTGTGACTGTTTCTATGGCATACCCGCGTGGAGGAATGCA
TCCATTCCCTGTTGTGCAACCAAAAATAGAGATACTTGGGGACCATACAGTGC
TTGCAGACAATGATGATTATCAGGAAATAGCTCTAAATGTAACAGAGGCTTCGAT
GCATGGAATAATACAGTAACAGAACAGCAGTGGAGGATGTCAGGAAATCTATTGAG
ACATCAATAAACCATGTGTCAAATTAAACACCCCTATGTGTAGCAATGAACGTACA
AGGAACATGACCACATCCACAGGGACCACAGACACCCAAAATATCACAATTATAAAT
GACACTTCGCCATGCGTACGTGCAGACAACACTGCACAGGATTAAAGGAGGAAGAAATG
GTCGACTGTCAGTTAATATGACAGGATTAGAGAGAGACAAGAGAAAACAGTATACT
GAAGCATGGTACTCAAAAGATGTGATTGTGACAATAACACCTCAAGTCGGAGCAAG
TGTTACATGAACCATTGCAATACATCAGTCATCACAGAGTCATGTGATAAGCACTAT
TGGGATGCTATGAGGTTAGATACTGTGCACCACCGGGTTTGCCTACTAAGATGC
AATGATACTAATTATTCAAGGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACA
TGCACCAAGATGGAAACGCAATCTTCTACATGGTTGGCTTAATGGCACTAGA
GCAGAAAATAGAACATATATCTATTGGCATGGTAAAATAACAGAACTATTATCAGC
TTAAATAACTTTATAATCTCACTATGCAATTGTAAGAGGCCGGAAATAAGACAGTG
TTACCAATAATGTCAGGGTTAAAGTTCACTCCAAGCCGGTCATCAATAAAAAACCC
AGGCAAGCATGGTGTGGTTCAAAGGCGAATGGAAGGAAGCCATGCAGGAGGTGAAG
GAGACCTTGCAGAACATCCCAGATATAAGGGAACAGGGAGCCGCACAGAGAAATT
AAATTTAAAGCACCAGGAAGAGGGCTCAGACCCAGAACGAGCATACTGTGGACTAAC
TGCAGAGGGAAATTCTACTGCAACATGACTTGGTTCTCAATTGGGTAGATAAC
AGGACGGGTAGAAACAGCGCAATTATGCACCGTGCATATAAGGCAAATAATTAAAT
ACTTGGCACAGGGTAGGGAAAAACGTATATTGCGCTCCCAGGGAAAGGGAGTTGACC
TGCAACTCAACAGTGACCAGCATAATTGCCAACATTGATACGGGAGATCAAACAGAT
ATTACCTTGTGCAGAGGTGGCAGAACTATACCGATTGGAATTGGGAGATTACAAA
TTAGTAGAAATCACACCAATTGGCTCGCACCTACATCAGTAAAGAGATACTCCTCT
GCTCACCAAGAGACATACAAGA

FIG. 21E

GVFVLGFLGFLATGSAMGAASLTLTQSRSLAGIVQQQQQLLDVVKKQQEMRLT
VWGTKNLQARVTAIEKYLKDQAQLNSWGCARQVCHTSVPWVNDLTPDWNNMTWQE
WEQKVRYWEANISQSLEQAQIQQEKNLYLELQKLNSWGVFTNWLDFTSWVRYIQYGVY
VVVGIVALRIVIYIVQMLSRLRKGYRPVSSPPGYIQQIHIHKDQEQPAREEETEDV
GSNGGDRSWL*PIAYIHFLIRLLIRLLIGLYNICRDLLSRISPILQPIFQSLQRALT
AIRDWLRKAAYLQYGCEWIQEAFQALARTTRELAGAG

FIG. 21F

GGTGTGTTCGTGTAGGGTTCTGGGTTCTCGAACGGCAGGTTCTGCAATGGC
GCGGCGTCGTTGACGCTGACCGCTCAGTCCGGACTTCATTGGCTGGGATAGTGCAG
CAACAGCAACAGCTGTTGGATGTGGTCAAGAAACAAGAAATGTTGCGACTGACC
GTCTGGGAACACTAAAATCTCAGGCAAGAGTCACTGCTATAGAGAAATACCTAAAG
GACCAGGCGCAGCTAAATTGATGGGATGTGCGTTAGACAAGTCTGCCACACTTCT
GTACCATGGTAAATGATAGCTTGACACCTGATTGAAACAATATGACGTGGCAGGAA
TGGGAACAAAAAGTCCGCTACTGGGAGGCAAATATCAGTCAGTCAAAGTCTAGAACAGCA
CAAATTCAAGAAAAGAATTGTATGAGCTGCAAAATTAATAGCTGGGTGTT
TTTACCAATTGGCTTGACTTCACCTCCTGGTCAGGTATATTCAATATGGAGTTAT
GTAGTAGTAGGAATAGTAGCTTAAGAATAGTAATATATAGTACAGATGTTAAGT
AGACTTAGGAAGGGCTATAGGCCTGTTCTCCTCCCCCGGTTATATCCAACAG
ATCCATATCCACAAGGACCAGGAACAGCCAGCCAGAGAAAGAACAGAAGAACGTT
GGAAGCAACGGTGGAGACAGATCTGGCTTAGCCGATAGCATAATTCAATTCTG
ATCCGCCTGCTGATTGCCTCTTGATCGGCTATAACACATCTGCAGAGACTTACTA
TCCAGGATCTCCCGATCCTCCAACCAATCTTCCAGAGTCTCCAGAGAGCACTAAC
GCAATCAGAGACTGGCTGAGGCTTAAAGCAGCCTACCTGCAGTATGGGTGCGAGTGG
ATCCAAGAAGCGTTCCAAGCCCTTGCAAGGACTACAAGAGAGACTCTGCAGGCGCG
GGG

FIG. 22A

MKGSKNQLLIAIVLASAYLTHCKQFVTVFYGI PAWRNASI PLFCATKNRDTWGTVQCLPDND
DYQEIALNVTEAFDAWDNTVTEQAVEDVWNLFETSIKPCVKLTPLCVGAGHCNTSVIKESCD
KHYWDAMRFRYCAPPGFALLRCNDINYSGFAPNC SKVVAATCTRMMETQSSTWFGFNGTRTE
NRTYIYWHGKNRRTIISLNNFYNLTMHCKRPGNKGAGKPRQAWCWFKG EWKEAMQEVKETLA
KHPRYKGNRSRTENIKFKA PGRGSDPEAAYMWTNCRGEFLYCDMTWFLNWVDNRTGQKQRNY
APCHIRQIINTWHRVGKNVYLPPREGE LCNSTVTSIIANIDTGDQTDITFSAEVAELYRLE
LGDYKLVEITPIGFAPTSVKRYSSAHQRHTRGVFVLGFLATAGSAMGAASVTLTAQSRT
SLTGIVQQQQQLLDVVKKQQEMRLTVWGTKNLQARVTAIEKYLKDQAQLNSWGCAFQVCH
TSVPWVNDSLTPDWNNMTWQEWEQKVRYWEANISQSLEQAQIQQEKNLYELQKLNSWGVFTN
WLDFTSWVRYIQYGVYVVVGIVALRIVIYIVQMLSRLRKGYRPVFSSPPGYIQQIHIHKDQE
QPAREETEEDVGSNGGDRSWL*PIAYIHFLIRLLIRLLIGLYNICRDLLSRISPILOPQIFQS
LQRALTAIRDWLRLKAAYLQYGCEWIQEAFQALARTTRETLAGAG

FIG. 22B

ATGAAGGGTAGTAAGAATCAACTGCTATTGCTATTGACTAGCTAGTGCTTACCTAACACA
 TTGCAAGCAATTGTGACTGTTCTATGGCATAACCGCGTGGAGGAATGCATCCATTCCCC
 TGTTTGTGCAACCAAAATAGAGATACTGGGAACTGTACAGTGCTGCCAGACAATGAT
 GATTATCAGGAAATAGCTTAAATGTAACAGAGGCTTCGATGCATGGATAATACAGTAAC
 AGAACAAAGCAGTGGAGGATGTCTGGAATCTATTGAGACATCAATAAAACATGTGTCAAAT
 TAACACCCATTGTGTAGGTGCCGCCATTGCAATACATCAGTCATCAAAGAGTCATGTGAT
 AAGCACTATTGGGATGCTATGAGGTTAGATACTGTGCACCACCGGGTTTGCCCTACTAAG
 ATGCAATGATATTAAATTATTCACTGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACAT
 GCACCAGAATGATGGAAACGCAATCTTCTACATGGTTGGCTTAATGGCACTAGAACAGAA
 AATAGAACATATATCTATTGGCATGGTAAAAATAACAGAACTATTATCAGCTAAATAACTT
 TTATAATCTCACTATGCATTGTAAGAGGCCGGAAATAAGGGTGCCGGAAACCCAGGCAAG
 CATGGTGTGGTCAAAGGCGAATGGAAGGAAGGCCATGCAGGAGGTGAAGGAGACCCTGCG
 AAACATCCCAGATATAAGGAAACAGGAGCCGCACAGAGAATATTAAATTAAAGCACCAGG
 AAGAGGCTCAGACCCAGAACGAGCATACTGGACTAATGCGAGGGAAATTCTCTACT
 GCGACATGACTTGGTTCCTCAATTGGTAGATAACAGGACGGTCAGAACAGCGCAATTAT
 GCACCGTGCATATAAGACAAATAATTAAACTTGGCACAGGGTAGGGAAAACGTATATT
 GCCTCCCAGGGAAGGGAGTTGACCTGCAACTCAACAGTGCAGGGCAGCAGATAATTGCAACATTG
 ATACGGGAGATCAAACAGATATTACCTTACTGGCACAGGGTAGGGAAAACGTATATT
 TTGGGAGATTACAAATTAGTAGAAATCACACCAATTGGCTTCGACCTACATCAGTAAGAG
 ATACTCCTCTGCTCACCAAGAGACATACAAGAGGTGTGTTGCTAGGGTTCTGGTTTTC
 TCGCAACGGCAGGTTCTGCAATGGCGCGCGTGGTGCACGCTGACCCTCAGTCCGGACT
 TCATTGACTGGGATAGTGCAGCAACAGCAACAGCTGGATGTGGTCAAGAAACAACAAGA
 AATGTTGCGACTGACCGTCTGGGAACTAAAATCTCAGGCAAGAGTCAGTCTATAAGAGA
 AATACCTAAAGGACCAGGGCAGCTAAATTGAGGATGTGCTTAGACAAGTCTGCCAC
 ACTTCTGTACCATGGTAAATGATAGCTTGACACCTGATTGAAACAATATGACGTGGCAGGA
 ATGGGAAACAAAAGTCCGCTACTGGGAGGCAAATATCAGTCAAAGTCTAGAACAGCACAAA
 TTCAGCAAGAAAAGAATTGTATGAGCTGCAAAAATTAAATAGCTGGGTGTTTACCAAT
 TGGCTTGACTTCACCTCTGGTCAGGTATATTCAATATGGAGTTACGTAGTAGAGAAT
 AGTAGCTTAAGAATAGTAATATATAGTACAGATGTTAAGTAGACTTAGGAAGGGCTATA
 GGCCTGTTCTCCTCCCCCGGTTATATCCAACAGATCCATATCCACAAGGACCAGGAA
 CAGCCAGCCAGAGAAGAAACAGAAGAAGACGTTGGAAGCAACGGTGGAGACAGATCTGGCT
 TTAGCCGATAGCATATATTCAATTGCTGATCCGCTGCTGATTGCGCTTGTACGGCTAT
 ACAACATCTGCGAGACTTACTATCCAGGATCTCCCGATCTCCAACCAATCTCCAGAGT
 CTCCAGAGAGCACTAACAGCAATCAGAGACTGGCTGAGGCTAAAGCAGCCTACCTGCAAGTA
 TGGGTGCGAGTGGATCCAAGAACGCTTCAAGCCCTGCAAGGACTACAAGAGAGACTTTG
 CAGGCGCGGGG

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FIG. 22C

MKGSKNQLLIAIVLASAYLTHCKQFVTVFYGI PAWRNASIPLFCATKNRDTWGTQCLPDND
DYQEIALNVTEAFDAWDNTVTEQAVEDVWNLFETSIKPCVKLTPLCVGAGHCNTSVIKESCD
KHYWDAMRFRYCAPPGFALLRCNDINYSGFAPNC SKVVAATCTRMMETQSSTWFGFNGTRTE
NRTYIYWHGKNNRTIISLNNFYNLTMHCKRPGNGAGKPRQAWCWFKEAMQEVKETLA
KHPRYKGNRSRTENIKFKAPGRGSDPEAAYMWTNCRGEFLYCDMTWFLNWVDNRTGQKQRNY
APCHIRQIINTWHRVGKNVYLPPREGELECNSTVTSIIANIDTGDQTDITFSAEVAELYRLE
LGDYKLVEITPIGFAPTSVKRYSSAHQRHTR

FIG. 22D

ATGAAGGGTAGTAAGAACATCAACTGCTGATTGCTATTGTAAGCTAGCTAGTGCTTACCTAACACA
TTGCAAGCAATTGTGACTGTTTCTATGGCATACCCGCGTGGAGGAATGCATCCATTCCCC
TGTTTGTGCAACCAAAAATAGAGATACTTGGGAACTGTACAGTGCTGCCAGACAATGAT
GATTATCAGGAAATAGCTTAAATGTAACAGAGGCTTCGATGCATGGATAATACAGTAAC
AGAACAAAGCAGTGGAGGATGTCTGGAATCTATTGAGACATCAATAAAACCATGTGTCAAAT
TAACACCCTTATGTGTAGGTGCCGGCATTGCAATACATCAGTCATCAAAGAGTCATGTGAT
AAGCACTATTGGGATGCTATGAGGTTAGATACTGTGCACCACCGGGTTGCCCTACTAAG
ATGCAATGATATTAAATTATTCAAGGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACAT
GCACCAAGAATGATGGAAACGCAATCTTACATGGTTGGCTTAATGGCACTAGAACAGAA
AATAGAACATATATCTATTGGCATGGTAAAAATAACAGAACATTATCAGCTTAAATAACTT
TTATAATCTCACTATGCATTGTAAGAGGCCGGAAATAAGGGTGCCGGCAAACCCAGGCAAG
CATGGTGTGGTTCAAAGGCGAATGGAAGGAAGGCCATGCAGGAGGTGAAGGAGACCCTGCG
AAACATCCCAGATATAAGGAACAGGAGCCGCACAGAGAACATTAAATTAAAGCACCAAGG
AAGAGGCTCAGACCCAGAACAGCAGCATACATGTGGACTAACTGCAGAGGGAAATTCTCTACT
GCGACATGACTGGTCTCAATTGGTAGATAACAGGACGGTCAGAACAGCGCAATTAT
GCACCGTGCATATAAGACAAATAATTAAACTTGGCACAGGGTAGGGAAAACGTATATT
GCCTCCCAGGGAAAGGGAGTTGACCTGCAACTAACAGTGACCGACAGCATAATTGCCAACATTG
ATACGGGAGATCAAACAGATATTACCTTAGTGCAGAGGTGGCAGAACATACCGATTGGAA
TTGGGAGATTACAAATTAGTAGAAATCACACCAATTGGCTCGCACCTACATCAGTAAAGAG
ATACTCCTCTGCTCACCAAGAGACATACAAGA

FIG. 22E

GVFVLGFLGFLATGSAMGAASVLTQSRSLTGIVQQQQQLLDVVKKQQEMRLTVWGTK
NLQARVTAIEKYLKDQAQLNSWCAFQVCHTSVPWVNDSLTPDWNNMTWQEWEQKVRYWEA
NISQSLEQAQIQQEKNLYELQKLNSWGVFTNWLDFTSWVRYIQYGVYVVVGIVALRIVIYIV
QMLSRLRKGYRPVFSSPPGYIQQIHIHKDQEQPAREETEEDVGSNGGDRSWL*PIAYIHFLI
RLLIRLLIGLYNICRDLLSRIPILOPQIFQSLQRALTAIRDWLRLKAAYLQYGCEWIQEAFQ
ALARATTRETLAGAG

FIG. 22F

GGTGTGTTCGTCTAGGGTTCTGGGTTTCGCAACGGCAGGTTCTGCAATGGCGCGGC
GTCGGTGACGCTGACCGCTCAGTCCGGACTTCATTGACTGGGATAGTCAGCAACAGCAAC
AGCTGTTGGATGTGGTCAAGAAACAACAAGAAATGTTGCGACTGACCGTCTGGGAACATAAA
AATCTCCAGGCAAGAGTCACTGCTATAGAGAAATACCTAAAGGACCAGGCGCAGCTAAATT
ATGGGGATGTGCGTTAGACAAGTCTGCCACACTCTGTACCATGGTAAATGATAGCTTGA
CACCTGATTGGAACAATATGACGTGGCAGGAATGGAACAAAAAGTCGCTACTGGGAGGCA
AATATCAGTCAAAGTCTAGAACAAAGCACAAATTCAAGCAAGAAAAGAATTGTATGAGCTGCA
AAAATTAAATAGCTGGGTGTTTACCAATTGGCTGACTTCACCTCCTGGTCAGGTATA
TTCAATATGGAGTTACGTAGTAGTAGGAATAGTAGCTTAAGAATAGTAATATATAGTA
CAGATGTTAAGTAGCTTAGGAAGGGCTATAGGCCTGTTCTCCTCCCCCGGTTATAT
CCAACAGATCCATATCCACAAGGACCAGGAACAGCCAGCCAGAGAAAGAACAGAAGAAGACG
TTGGAAGCAACGGTGGAGACAGATCTGGCTTAGCCGATAGCATATATTCAATTCTGATC
CGCCTGCTGATTCGCCTCTGATCGGGCTATAACACATCTGCAGAGACTTACTATCCAGGAT
CTCCCCGATCCTCCAACCAATCTCCAGAGTCTCCAGAGAGCACTAACAGCAATCAGAGACT
GGCTGAGGCTTAAAGCAGCCTACCTGCAGTATGGGTGCGAGTGGATCCAAGAACGTTCAA
GCCCTTGCAAGGACTACAAGAGAGACTCTTGCAAGGCGCGGG

FIG. 23A

MKGSKNQPLIAIVLASAYLTHCKQFVTVFYGI PAWRNASIPLFCATKNRDTWGTQCLPDND
DYQEIALNVTEAFDAWDNTVTEQAVEDVWNLSETSIKPCVKLTPLCVGAGHCNTSVITESCD
KHYWDAMRFRYCAPPGFALLRCNDTNYSGFAPNC SKVVAATCTRMMETQSSTWFGFNGTRAE
NRTYIYWHGKNDRTIISLNNFYNLTMHCKRPGNGAGKPRQAWCWFKG EWKEAMQEVKETLA
KHPYKGNSRTERENIKFKAPGRGSDPEAAYMWTNCRGEFLYCDMTWFLNWENRTGQKQRNY
APCHIRQIINTWHRVGKNVYLPPREGEELTCNSTVTSIIANIDTGDQTDITFSAEVAELYRLE
LGDYKLVEITPIGFAPTSVKRYSSAHQRHTRGVFVLGFLGFLATAGSAMGAASVTLTAQSRT
SLTGVVQQQQQLLDVVKKQQEMLRLTVWGTKNLQARVTAIEKYLKDQAQLNSWGCAFQVCH
TSVPWVNDSLTPDWNNMTWQEWEQKVRYWEANI SQSLEQAQIQQEKNLYELQKLN SWGVFTN
WLDFTSWVRYIQYGVYVVVGIVALRIVIYIVQMLSRLRGYRPVSSPPGYIQQIHIHKDQE
QPAREETEEDVGSNGGDKSWL

FIG. 23B

ATGAAGGGTAGTAAGAATCAACCGCTGATTGCTATTGTACTAGCTAGTGCTTACCTAACACA
 TTGCAAGCAATTGTGACTGTTTCTATGGCATACCCGCGTGGAGGAATGCATCCATTCCCC
 TGTTTGTGCAACCAAAAATAGAGATACTTGGGAACCGTACAGTGCTGCCAGACAATGAT
 GATTATCAGGAAATAGCTTAAATGTAACAGAGGCTTCGATGCATGGATAATACAGTAAC
 AGAACAAAGCAGTGGAGGATGTCTGGAATCTATCTGAGACATCAATAAAACCATGTGTCAAAT
 TAACACCCCTATGTGTAGGTGCCGCCATTGCAATACATCAGTCATCACAGAGTCATGTGAT
 AAGCACTATTGGATGCTATGAGGTTAGATACTGTGCACCACCGGGTTTGCCTTACTAAG
 ATGCAATGATACTAATTATTCAAGGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACAT
 GCACCAGAATGATGGAAACGCAATCTCTACATGGTTGGCTTAATGGCACTAGAGCAGAA
 AATAGAACATATATCTATTGGCATGGTAAAATGACAGAACTATTATCAGCTTAAATAACTT
 TTATAATCTCACTATGCATTGTAAGAGGCCGGAAATAAGGGTGCCGGCAAACCCAGGCAAG
 CATGGTGTGGTCAAAGGCGAATGGAAGGAAGGCCATGCAGGGTAGAGGAGACCCTGCG
 AAACATCTAGATATAAGGAACAGGAGCCGCACAGAGAAATTAAATTAAAGCACCCAGG
 AAGAGGCTCAGACCCAGAAGCAGCATACTGTGACTAATGCAAGGGAGACCGTCAAGAACAGCGTAATTAT
 GCGACATGACTGGTTCCTCAATTGGTAGAAAACAGGACGGTCAGAAACAGCGTAATTAT
 GCACCGTGCATATAAGGCAAATAATTAAACTTGGCACAGGGTAGGGAAAACGTATATT
 GCCTCCCAGGGAAAGGGAGTTAACCTGCAACTCAACAGTGACCGATAATTGCCAACATTG
 ATACGGGAGATCAAACAGATATTACCTTAGTGCAGAGGTGGCAGAACTATACGGTTGGAA
 TTGGGAGATTACAAATTAGTAGAAATCACACCAATTGGCTTCGCACCTACATCAGTAAAGAG
 ATACTCCTCTGCTCACCAAGAGACATACAAGAGGTGTTCTGCTAGGGTTCTGGGTTTTC
 TCGCAACGGCAGGTTCTGCAATGGCGCGCGTGGTACGCTGACCGCTCAGTCCCAGGACT
 TCATTGACTGGGTAGTGCAAGCAACAGCAACAGCTGTTGGATGTGGTCAAGAAACAACAAGA
 AATGTTGCGACTGACCGTCTGGGAACATAAAATCTCCAGGCAAGAGTCAGTCTAGAGA
 AATACCTAAAGGACCAGGCCAGCTAAATTCAATGGGATGTGCGTTAGACAAGTCTGCCAC
 ACTTCTGTACCATGGTAAATGATAGCTTGACACCTGATTGGAACAAATATGACGTGGCAGGA
 ATGGGAACAAAAGTCCGCTACTGGGAGGCAAATATCAGTCAAAGTCTAGAACAGCACAAA
 TTCAGCAAGAAAAGAATTGTATGAGCTGCAAAATTAAATAGCTGGGTGTTTACCAAT
 TGGCTTGACTTCACCTCCTGGTCAGGTATATTCAATATGGAGTTATGTAGTAGTAGGAAT
 AGTAGCTTAAGAATAGTAATATATAGTACAGATGTTGAGTAGACTTAGGAAGGGCTATA
 GGCCTGTTCTCCTCCCCCGTTATATCCAACAGATCCATATCCACAAGGACCAGGAA
 CAGCCAGCCAGAGAAAGAACAGAAGAACAGACGTTGGAAGCAACGGTGGAGACAAATCTGGCT
 TTAG

FIG. 23C

MKGSKNQPLIAIVLASAYLTHCKQFVTVFYGI PAWRNASIPLFCATKNRDTWGTVQCLPDND
DYQEIALNVTEAFDAWDNTVTEQAVEDVWNLSETSIKPCVKLTPLCVGAGHCNTSVITESCD
KHYWDAMRFRYCAPPGFALLRCNDTNYSGFAPNC SKVVAATCTRMMETQSSTWFGFNGTRA
NRTYIYWHGKNDRTIISLNNFYNLTMHCKRPGNKGAGKPRQAWCWFKEAMQEVKETLA
KHPRYKGNRSRTENIKFKAPGRGSDPEAAYMWTNCRGEFLYCDMTWFLNWENRTGQKQRNY
APCHIRQIINTWHRVGKVNVLPPREGELECNSTVTSIIANIDTGDQTDITFSAEVAELYRLE
LGDYKLVEITPIGFAPTSVKRYSSAHQRHTR

FIG. 23D

ATGAAGGGTAGTAAGAATCAACCGCTGATTGCTATTGACTAGCTAGTGCTTACCTAACACA
TTGCAAGCAATTGTGACTGTTTCTATGGCATACCCGCGTGGAGGAATGCATCCATTCCCC
TGTTTGTGCAACCAAAATAGAGATACTGGGAACCGTACAGTGCTGCCAGACAATGAT
GATTATCAGGAAATAGCTTAAATGTAACAGAGGCTTCGATGCATGGATAATACAGTAAC
AGAACAAAGCAGTGGAGGATGTCTGGAATCTATCTGAGACATCAATAAAACCATGTGCAAAT
TAACACCCCTATGTGTAGGTGCCGGCATTGCAATACATCAGTCATCACAGAGTCATGTGAT
AAGCACTATTGGGATGCTATGAGGTTAGATACTGTGCACCACCGGGTTTGCCTTACTAAG
ATGCAATGATACTAATTATTCAAGGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACAT
GCACCAGAATGATGGAAACGCAATCTTACATGGTTGGCTTAATGGCACTAGAGCAGAA
AATAGAACATATCTATTGGCATGGTAAAAATGACAGAACTATTATCAGCTTAAATAACTT
TTATAATCTCACTATGCATTGTAAGAGGCCGGAAATAAGGGTGCCGGCAAACCCAGGCAAG
CATGGTGTGGTTCAAAGGCAATGGAAGGAAGGCCATGCAGGAGGTGAAGGAGACCTGCG
AAACATCCTAGATATAAGGAACAGGAGCCGCACAGAGAATATTAAATTAAAGCACCAGG
AAGAGGCTCAGACCCAGAACGCAGCATACATGTGGACTAATGCACTGCAGAGGGAAATTCTACT
GCGACATGACTGGTTCCTCAATTGGGTAGAAAACAGGACGGTCAGAACACAGCGTAATTAT
GCACCGTGCCTATAAGGCAAATAATTAAATACTTGGCACAGGGTAGGGAAAACGTATATT
GCCTCCCAGGGAAAGGGAGTTAACCTGCAACTCAACAGTGACCAGCATAATTGCCAACATTG
ATACGGGAGATCAAACAGATATTACCTTACTGCAGAGGTGGCAGAACTATACCGGTTGGAA
TTGGGAGATTACAAATTAGTAGAAATCACACCAATTGGCTCGCACCTACATCAGTAAAGAG
ATACTCCTCTGCTCACCAGAGACATACAAGA

FIG. 23E

GVFVLGFLATAGSAMGAASVLTQASRTSLTGVVQQQQQLLDVVKQQEMRLTVWGTK
NLQARVTAIEKYLKDQAQLNSWGCAFQVCHTSVPVNDSLTPDWNNMTWQEWEQKVRYWEA
NISQSLEQAQIQQEKNLYELQKLN SWGVFTNWLDFTSWVRYIQYGVYVVGVIVALRIVIYIV
QMLSRLRKGYRPVFSSPPGYIQQIHIHKDQEQPAREETEEDVGSNGGDKSWL

FIG. 23F

GGTGTGTCGTGCTAGGGTTCTGGGTTCTCGAACGGCAGGTTCTGCAATGGCGCGC
GTCGGTGACGCTGACCGCTCAGTCCGGACTTCATTGACTGGGTAGTGCAGCAACAGCAAC
AGCTGTTGGATGTGGTCAAGAAACAACAAGAAATGTTGCGACTGACCGCTGGGGAACTAAA
AATCTCCAGGCAAGAGTCACTGCTATAGAGAAATACCTAAAGGACCAGGCGCAGCTAAATT
ATGGGGATGTGCGTTAGACAAGTCTGCCACACTCTGTACCATGGTAAATGATAGCTTGA
CACCTGATTGGAACAATATGACGTGGCAGGAATGGGAACAAAAGTCCGCTACTGGGAGGCA
AATATCAGTCAAAGTCTAGAACACAAGCACAAATTCAAGCAAGAAAAGAATTGTATGAGCTGCA
AAAATTAAATAGCTGGGTGTTTACCAATTGGCTTGACTTCACCTCCTGGTCAGGTATA
TTCAATATGGAGTTATGTAGTAGTAGGAATAGTAGCTTAAGAATAGTAATATATAGTA
CAGATGTTGAGTAGACTTAGGAAGGGCTATAGGCCTGTTCTCCTCCCCCCCCGGTTATAT
CCAACAGATCCATATCCACAAGGACCAGGAACAGCCAGCCAGAGAAGAACAGAAGACG
TTGGAAGCAACGGTGGAGACAAATCTGGCTTAG

FIG. 24A

MKGSKNQLLIAIILASAYLTHCKQFVTVFYGI PAWRNASI PLFCATKNRDTWGTIQCLPDND
DYQEIALNVTEAFDAWNNTVTEQAVEDVWNLFETS IKPCVKLTPLCVAMNCTRNM TTSTGTT
DTQNIITINDTSPCVRADNCTGLKEEEMVDCQFNMTGLERDKRQYTGAWSKDVI CDNNTS
SRSKCYMNHCNTSVI TESCDKHYWDAMRFYCAPPGFALLRCNDTNYSGFAPNCSKVVAATC
TRMMETQSSTWFGFNGTRAENRTYIYWHGKNNRTIISLNNFYNLTMHCKRPGNKGAGKPRQA
WCWFKGEWKEAMQEVKETLAKHPRYKGNRSRTENIKFKA PGRGSDPEAAYMWTNCRGEFLY
NMAWFLNWVDNRTGQKQRNYAPCHIRQIINTWHRVGKNIYLPREGELTCNSTVTSIIANID
TGDQTDITFSAEVAELYRLELGDYKLVEITPIGFAPTSVKRYSSAHQRHTRGVFVLGFLGFL
ATAGSAMGAASVTLTAQSRTSLAGIVQQQQQLLDVVKQQEMRLRTWGTKNLQTRVTAIEK
YLKDQAQLNSWGC AFRQVCHTSVPVNDSLTPDWNNMTWQEWEQKVRYWEANI SQSLEQAQI
QQEKNLYELQKLN SWGVFTNWLDFTSWVRYI QYGVYVVVGIVT L RIVIYIVQMLSRLRGYR
PVFSSPPGYIQQIHIHKDQEQPAREETEEDVGSNGGDRSWL

FIG. 24B

ATGAAGGGTAGTAAGAATCAACTGCTGATTGCTATTATACTAGCTAGTGCTTACCTAACACA
 TTGCAAGCAATTGTGACTGTTCTATGGCATACCGCGTGGAGGAATGCATCCATTCCCC
 TGTTTGTGCAACAAAAATAGAGATACTTGGGAACCATAACAGTGCTGCCAGACAATGAT
 GATTATCAGGAAATAGCTCTAAATGTAACAGAGGCTTCGATGCATGGAATAATACAGTAAC
 AGAACAAAGCAGTGGAGGATGTCTGGAATCTATTGAGACATCAATAAAACCATGTGTCAAAT
 TAACACCCTATGTGTAGCAATGAACGTACAAGGAACATGACCACATCCACAGGGACCACA
 GACACCCAAAATATCACAATTATAAATGACACTTCGCCATCGTACGTGCAGACAACTGCAC
 AGGATTAAAGGAGGAAGAAATGGTCAGTGTCAAGTTAATATGACAGGATTAGAGAGAGACA
 AGAGAAAACAGTATACTGGAGCATGGTACTCAAAAGATGTGATTGTGACAATAACACCTCA
 AGTCGGAGCAAGTGTACATGAACCATTGCAATACATCAGTCATCACAGAGTCATGTGATAA
 GCACTATTGGGATGCTATGAGGTTAGATACTGTGCACCACCGGTTTGCCTACTAAGAT
 GCAATGATACTAATTATTCAAGGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACATGC
 ACCAGAAATGATGAAACGCAATCTTCTACATGGTTGGATTAAATGGCACTAGAGCAGAAAA
 TAGAACATATATCTATTGCATGGTAAAAATAACAGAACTATTATCAGCTTAAATAACTTT
 ATAATCTCACTATGCATTGTAAGAGGCCGGAAATAAGGGTCCGGCAAACCCAGGCAAGCA
 TGGTGTGGTCAAAGGCGAATGGAAGGAAGGCCATGCAGGAGGTGAAGGGAGACCCTGCGAA
 ACATCCCAGATATAAGGAAACAGGAGCCGACAGAGAATATTAAATTAAAGCACCAGGAA
 GAGGCTCAGACCCAGAACAGCAGCATACATGTGGACTAACTGCAGAGGGAAATTCTACTGC
 AACATGGCTTGGTCCTCAATTGGTAGATAACAGGACGGTCAGAAACAGCGCAATTATGC
 ACCGTGCCATATAAGGAAATAATTAAACTTGGCACAGGGTAGGGAAAACATATATTG
 CTCCCAGGGAAGGGAGTTGACCTGCAACTCAACAGTGACCAGCATAATTGCCAACATTGAT
 ACGGGAGATCAAACAGATATTACCTTCTAGTGCAAGAGGTGGCAGAACTATACCGATTGGAATT
 GGGAGATTACAAATTAGTAGAAATCACACCAATTGGCTTCGCACCTACATCAGTAAAGAGAT
 ACTCCTCTGCTCACAGAGACATACAAGAGGTGTTCGTCTAGGGTTCTGGTTTCTC
 GCAACGGCAGGTTCTGCAATGGGCGCGCTCGGTGACGCTGACCGCCCAGTCCGGACTTC
 ATTGGCTGGATAGTGCAGCAACAGCAACAGCTGTTGGACGTGGTCAAGAAACAACAAGAAA
 TGTGCGACTGACCGTCTGGGAACATAAAATCTCAGACAAGAGTCAGTCTAGTATAGAGAAA
 TACCTAAAGGACCAAGGCAGTAAATGATAGCTTGACACCTGATTGAAACAATATGACGTGGCAGGAAT
 TTCTGTACCATGGTAAATGATAGCTTGACACCTGATTGAAACAATATGACGTGGCAGGAAT
 GGGAACAGAAAGTCCGCTACTGGGAGGCAAATATCAGTCAAAGTCTAGAACAGCACAAATT
 CAGCAAGAAAAGAATTGTATGAGCTGCAAAATTAAATAGCTGGGGTGTACCAATTG
 GCTTGACTTCACCTCCTGGTCAGGTATATTCAATATGGAGTTATGTAGTAGTAGGAATAG
 TAACTTTAAGAATAGTAATATATAGTACAGATGTTAAGTAGACTTAGGAAGGGCTATAGG
 CCTGTTCTCCCTCCCCCGTTATATCCAACAGATCCATATCCACAAGGACCAGGAACA
 GCCAGCCAGAGAACAGAACAGAACAGACGTTGGAAGCAACGGTGGAGACAGATCTTGGCTTT
 AGCCGATAGCATATATTCAATTGATCCGCTGCTGATTGCGCTCTGATCGGCTATAC
 AACATCTGCAGAGACTTACTATCCAGGATCTCCCGATCCTCAACCAATCTCCAGAGTCT
 CCAGAGAGCACTAACAGCAATCAGAGACTGGCTGAGGCTTAAAGCAGCCTACCTGCAGTATG
 GGTGCGAGTGGATCCAAGAAGCAGTTCCAAGCCCTGCAAGGACTACAAGAGAGACTTTGCA
 GGCGCGGGG

FIG. 24C

MKGSKNQLLIAIILASAYLTHCKQFVTVFYGIPAWRNASIPLFCATKNRDTWGTIQCLPDND
DYQEIALNVTEAFDAWNNTVTEQAVEDVWNLFETSIKPCVKLTPLCVAMNCTRNMTTSTGTT
DTQNIITINDTSPCVRADNCTGLKEEEMVDCQFNMTGLERDKRQYTGAWSKDVICDNNTS
SRSKCYMNHCNTSVITESCDKHYWDAMRFRYCAPPGFALLRCNDTNYSGFAPNCSKVVAATC
TRMMETQSSTWFGFNGTRAENRTIYWHGKNNRTIISLNNFYNLTMHCKRPGNKGAGKPRQA
WCWFKGEWKEAMQEVKETLAKHPRYKGNRSRTENIKFKAPGRGSDPEAAYMWTCRGEFLYC
NMAWFLNWVDNRTGQKQRNYAPCHIRQIINTWHRVGKNIYLPPREGELECNSTVTSIIANID
TGDQTDITFSAEVAELYRLELGDYKLVEITPIGFAPTSVKRYSSAHQRHTR

FIG. 24D

ATGAAGGGTAGTAAGAACATGCTGATTGCTATTATACTAGCTAGTGCTTACCTAACACA
TTGCAAGCAATTGTGACTGTTCTATGGCATACCGCGTGGAGGAATGCATCCATTCCCC
TGTTTGTGCAACCAAAATAGAGATACTTGGGAACCATACTGCTGCCAGACAATGAT
GATTATCAGGAAATAGCTCTAAATGTAACAGAGGCTTCGATGCATGGAATAATACAGAAC
AGAACAAAGCAGTGGAGGATGTCTGGAATCTATTGAGACATCAATAAAACCATGTGTCAAAT
TAACACCCTTATGTGTAGCAATGAACGTGACAAGGAACATGACCACATCCACAGGGACCACA
GACACCCAAAATATCACAATTATAAATGACACTTCGCCATGCGTACGTGCAGACAACTGCAC
AGGATTAAAGGAGGAAGAAATGGTCACTGTCAGTTAATATGACAGGATTAGAGAGAGACA
AGAGAAAACAGTATACTGGAGCATGGTACTCAAAAGATGTGATTGTGACAATAACACCTCA
AGTCGGAGCAAGTGTACATGAACCATTGCAATACATCAGTCATCACAGAGTCATGTGATAA
GCACTATTGGATGCTATGAGGTTAGATACTGTGACCACCGGTTTGCCTACTAAGAT
GCAATGATACTAATTATTCAAGGCTTGCACCTAATTGCTCTAAAGTAGTAGCTGCTACATGC
ACCAGAAATGATGGAAACGCAATCTTCTACATGGTTGGATTAAATGGCACTAGAGCAGAAAA
TAGAACATATATCTATTGGCATGGAAAAAACAGAACTATTACAGCTTAAATAACTTT
ATAATCTCACTATGCATTGTAAGAGGCCGGAAATAAGGGTCCGGCAAACCCAGGCAAGCA
TGGTGTGGTTCAAAGGCGAATGGAAGGAAGGCCATGCAGGAGGTGAAGGGACCCCTTGC
ACATCCCAGATATAAGGAAACAGGAGCCGACAGAGAAATATTAAATTAAAGCACCAGGAA
GAGGCTCAGACCCAGAACAGCAGCATACATGTGGACTAACTGCAGAGGGAAATTCTACTGC
AACATGGCTTGGTCTCAATTGGTAGATAACAGGACGGGTCAAGAACAGCGCAATTATGC
ACCGTGCCTATAAGGCAAATAATTAAACTTGGCACAGGGTAGGGAAAAACATATTTGC
CTCCCAGGGAAGGGAGTTGACCTGCAACTCAACAGTGACCAGCATAATTGCCAACATTGAT
ACGGGAGATCAAACAGATATTACCTTACTGTGCAAGGGTAGGGAAACTATACCGATTGGAATT
GGGAGATTACAAATTAGTAGAAATCACACCAATTGGCTTCGCACCTACATCAGTAAAGAGAT
ACTCCTCTGCTCACCAAGAGACATACAAGA

50/50

FIG. 24E

GVFVLGFLGFLATAGSAMGAASVTLTAQSRTSLAGIVQQQQQQLLDVVKKQQEMRLTVWGTK
NLQTRVTAIEKYLKDQAQLNSWGCAFQVCHTSVPWVNDSLTPDWNNMTWQEWEQKVRYWEA
NISQSLEQAQIQQEKNLYELQKLN SWGVFTNWLDFTSWVRYIQYGVYVVVGIVTLRIVIYIV
QMLSRLRKGYRPVFSSPPGYIQQIHIKDQEOPAREETEEDVGSNGGDRSWL

FIG. 24F

GGTGTGTTCGTCTAGGGTTCTGGGTTCTCGCAACGGCAGGTTCTGCAATGGCGCGGC
GTCGGTGACGCTGACCGCCCAGTCCCGACTCATTGGCTGGGATAGTGCAGCAACAGCAAC
AGCTGTTGGACGTGGTCAAGAAACAAGAAATGTTGCGACTGACCGCTGGGAACTAAA
AATCTCCAGACAAGAGTCAGTCTAGAGAAATACCTAAAGGACCAGCGCAGTTAAATT
ATGGGGATGTGCGTTAGACAAGTCTGCCACACTCTGTACCATGGTAAATGATAGCTTGA
CACCTGATTGAAACAATATGACGTGGCAGGAATGGAACAGAAAGTCCGACTGGGAGGCA
AATATCAGTCAAAGTCTAGAACACAAGCACAAATTCAAGCAAGAAAAGAATTGTATGAGCTGCA
AAAATTAATAGCTGGGTGTTTACCAATTGGCTGACTCACCTCCTGGTCAGGTATA
TTCAATATGGAGTTATGTAGTAGTAGGAATAGTAACCTTAAGAATAGTAATATATAGTA
CAGATGTTAAGTAGACTTAGGAAGGGCTATAGGCCTGTTCTCCTCCCCCGTTATAT
CCAACAGATCCATATCCACAAGGACCAGGAACAGCCAGCCAGAGAAAGAACAGAAGAAGACG
TTGGAAGCAACGGTGGAGACAGATCTTGGCTTAG